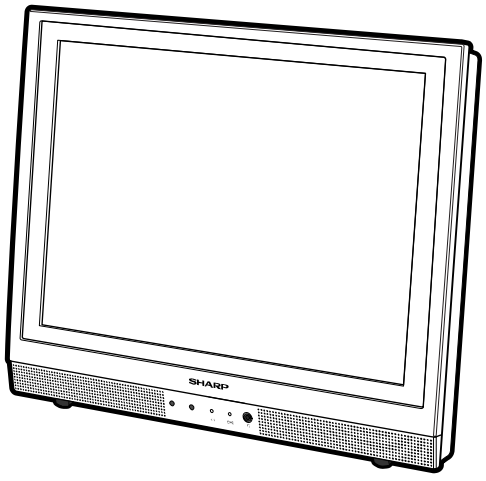
SHARP

SERVICE MANUAL

S93I1LC-13S1E



LCD COLOUR TELEVISION

MODELS **LC-13S1E**
LC-15S1E

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

SHARP CORPORATION

ADJUSTING PROCEDURE OF EACH SECTION

The best adjustment is made before shipping. If any position deviation is found or after part replace is performed, adjust as follows.

Preparation for adjustments

Use the dedicated AC adaptor or stable DC power supply.
LC-13/15S1E AC adaptor: UADP-A043WJPZ
DC power supply: 12V 5.0A

1. Adjusting procedure

- Checker adjustment
  Power ON (Adjustment processing mode) → +B adjustment → Counter bias adjustment → TAMP (Contrast) adjustment → White balance adjustment

2. Entering the adjustment processing mode

There are the following two methods.

- Setting the pin (81)(KEY4) or pin (82)(KEY5) of IC2001 (microprocessor) to GND, turn on the power.
- A "POWER" key is made on with pushing an "TV/VIDEO" and "MENU" keys at the same time.(K of the inspection process mode is displayed by the upper left of the image plane.) → Next, "CH (∨)" and "VOL (–)" keys are pushed at the same time.(It becomes the image plane of the adjustment process mode.).....When it is canceled, it is made to turn it off.(Even off in the "MAIN POWER" key, off with R/C are good.)

3. Key operation in the adjustment process mode

- The receiving channel UP/DOWN is performed with the "CH (∧)/(∨)" keys.
  One push ... The UP/DOWN tuning is performed per channel.
  Continuous push ... The UP/DOWN search is performed until a next receivable station is found.
- Various adjustments
  The adjustment is performed for each item by the "MENU", "Menu cursor", "CH (∧)/(∨)" or "VOL (+)/(–)" keys (LCD TV set and remote control).
- Adjustment item is chosen with the Menu cursor upward/downward keys.
- The adjustment item makes a toggle operation with the "MENU" key input. (Next item)
  If the "MENU" key is input while the bottom item is selected, it moves to the top item on the next page.
- Press the auto preset button on the remote controller in the adjustment process mode, and the top item of the next page will show up regardless of which item appears now.
  Page 1 → Page 2 → ... → Page 66 → Page 1
- Press the manual memory button on the remote controller in the adjustment process mode, and the top item of the same page will show up.
- UP/DOWN of each adjustment vale selected is performed with the VOL (+)/(–) keys input.

4. Initialization

When the microprocessor (IC2001) or the EEPROM (IC2007, IC2009) has been replaced or when the EEPROM has been initialized, readjust the each adjustments.

4-1. Connect the pins (81) and (82) of IC2001 (microprocessor) to GND, and turn on the power.

4-2. Check that the model name is (A661).

4-3. Select the inch size (13) : (LC-13S1E) and (15) : (LC-15S1E).

4-4. LED changes green from red after setting finish and about 15 seconds, initialization is completed, and it becomes adjustment mode.

4-5. Writing the model-by-model data

For the Ver.1.00A microprocessor, get it initialized first and then make the settings, listed below, on it. (The microprocessor version is indicated at the bottom of Adjustment Process Page 1.)

Ver.1.00A data reprogramming (INCH SIZE [13]) (LC-13S1E / E(K) / E(R))		
Adjustment process page	Item	OSD settings
12	PAL TV PKCFSOFT7C	6 → 4
47	PAL TV LDLY	0 → +1
47	PAL AV LDLY	0 → +1
–	DPS 2DH	–

Ver.1.00A data reprogramming (INCH SIZE [13]) (Only for LC-13S1E(K))		
Adjustment process page	Item	OSD settings
12	PAL TV PKCFSOFT7C	4 → 6
11	PAL TV COLOR	41 → 37
11	PAL AV COLOR	41 → 37
11	PAL TV TINT	–2→ +1
11	PAL AV TINT	–2→ +1
11	PAL BRIGHTNESS	–15→ –3

Ver.1.00A data reprogramming (INCH SIZE [15]) (LC-13S1E / E(K) / E(R))		
Adjustment process page	Item	OSD settings
11	PAL BRIGHTNESS	0 → –8
11	PAL-M BRIGHTNESS	0 → –8
11	PAL-N BRIGHTNESS	0 → –8
11	PAL60 BRIGHTNESS	0 → –8
12	PAL TV PKCFSOFT7C	6 → 4
47	PAL TV LDLY	0 → +1
47	PAL AV LDLY	0 → +1

Ver.1.00A data reprogramming (INCH SIZE [15]) (Only for LC-15S1E(K))		
Adjustment process page	Item	OSD settings
11	PAL TV COLOR	38→ 37
11	PAL AV COLOR	38→ 37
11	PAL TV TINT	–2→ +1
11	PAL AV TINT	–2→ +1
12	PAL TV PKCFSOFT7C	4 → 6

5. Adjustment

5-1. +B adjustment...Page 1 +B-ADJ

Adjust the voltage of the pin (4) of P1900 to 5.00 ±0.02V with R3714.

Note: Since 5.0V is a reference voltage of all power voltage, adjust it precisely.

5-2. Counter-bias adjustment

Vary the "COM BIAS" setting on Page 2 of the adjustment process mode so that the contrast be sharpest (black looks most sinking).

5-3. TAMP adjustment

1) Receive the upper left of 75% white half colour bar signal.
2) See if the "Y" reading on page 2 of the adjustment process mode is somewhere following. If not, make the "PAL TAMP" adjustment to get the "Y" reading in the range of AE thru BD.
3) If the adjustment of "PAL TAMP" is executed, write its adjustment value to the "SECAM TAMP" manually.

(Screen of the page 2 of the adjustment processing menu OSD)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
0		2																									
1		▶	C	O	M		B	I	A	S															9	0	
2			P	A	L		T	A	M	P															2	7	
3			S	E	C	A	M		T	A	M	P													2	7	
4			R	C	U	T	O	F	F																	0	
5			G	C	U	T	O	F	F																	0	
6			B	C	U	T	O	F	F																	0	
7			R	G	A	I	N																			0	
8			G	G	A	I	N																			0	
9			B	G	A	I	N																			0	
10				Y																					B	6	
11			T	A	M	P		H																	B	D	
12			T	A	M	P		L																	A	E	
13																											

Y Data
(White 75%)

5-4. White balance adjustment

Adjust "RCUTOFF", "BCUTOFF", "RGAIN" and "BGAIN" on the page 2 of the adjustment processing so as to obtain the colour of the same level as the standard set.

6. Factory Setting

6-1. Perform a factory setting after completing all adjustments.
6-2. A "POWER" keys is made on with pushing an "TV/VIDEO" and "MENU" keys at the same time.
6-3. "K" of the inspection process mode is displayed on the screen upper left.
6-4. CH (∧) and VOL (+) keys are pushed about 2 seconds at the same time.
6-5. Release keys, if "E" is displayed on the screen upper left and "COMPLETE" is displayed on the bottom of it.
6-6. After a while, a power will be in a standby mode and a setup will be finished.
Note: "First installation" serves on "Deutsch".

7. Lamp error detection

7-1. Functional description

This LCD colour television has a function (lamp error detection) to be turned OFF automatically for safety when the lamp or lamp circuit is abnormal.
If the lamp or lamp circuit is abnormal, or some other errors happen, and the lamp error detection is executed, the followings occur.

① The main unit of television is turned OFF 5 seconds after it is turned ON. (The power LED on the front side of TV turns from green to red.)
② If the situation ① happens 5 times sequentially, television can not be turned ON. (The power LED remains red.)

7-2. Countermeasures

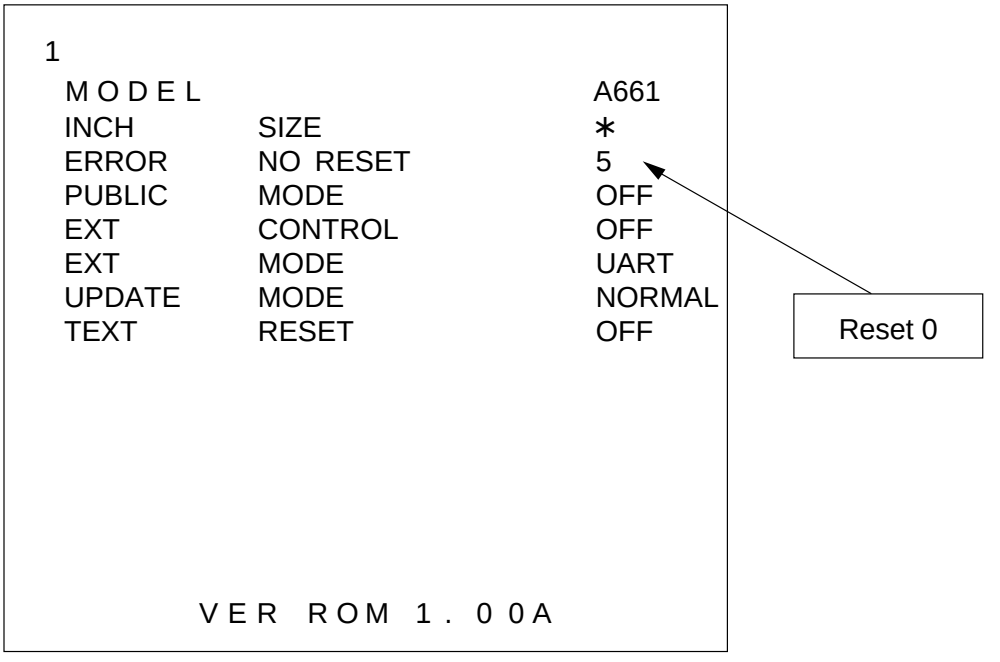
7-2-1. Check when turning OFF the lamp error detection

When television is turned OFF by the lamp error detection mentioned above, it enters the adjustment process with the power LED red. Entering the adjustment process turns OFF the error detection and turns ON TV.
This enables the operation check to detect errors in the lamp or lamp circuit.
Check whether "ERROR NO RESET" on line 3, page 1 of the adjustment process is 1 or more. If it is 1 or more, it indicates the lamp error detection was executed.

7-2-2. Resetting of the lamp error count

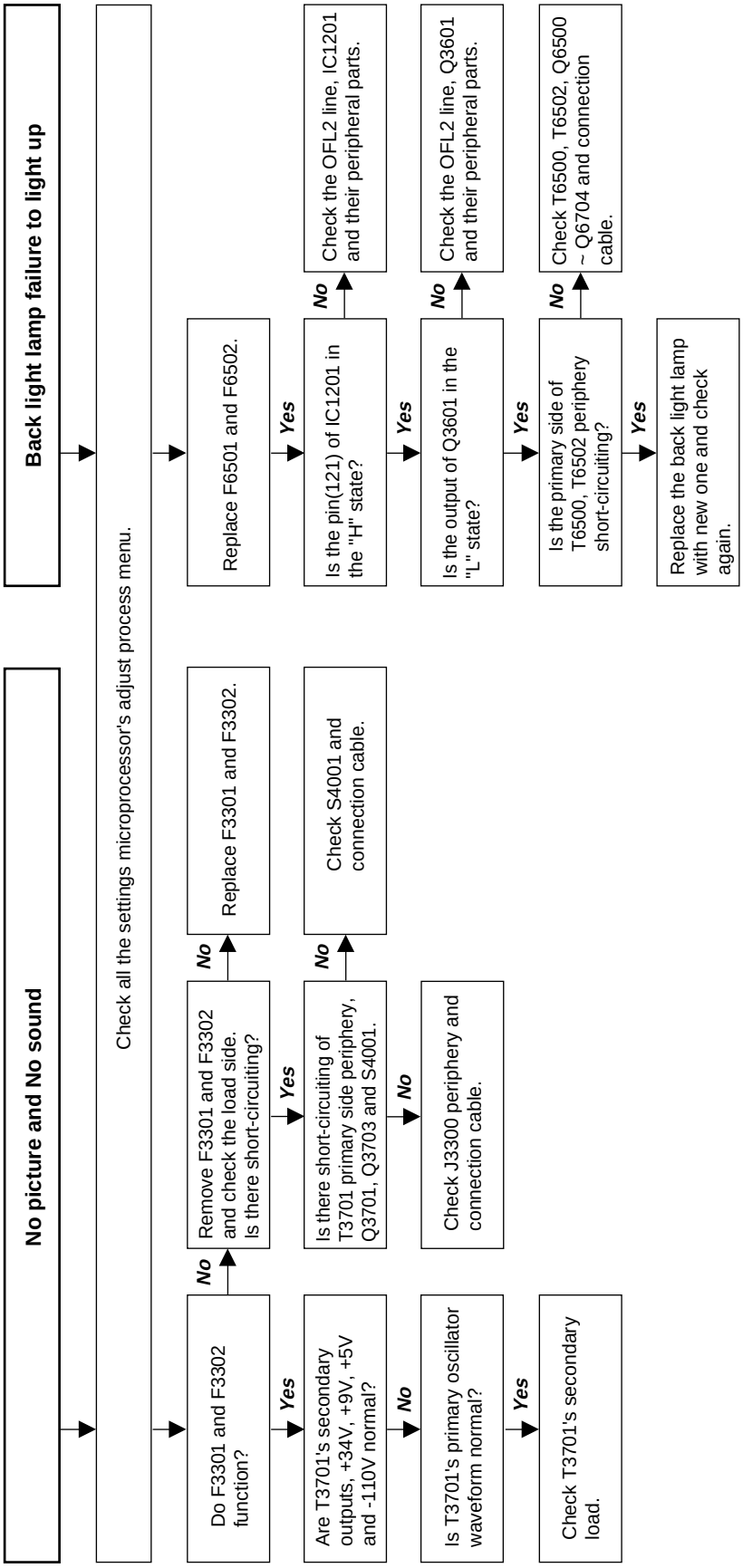
After confirming that the lamp or lamp circuit is normal, reset the lamp error count. Select "ERROR NO RESET" on line 3, page 1 of the adjustment process and set the number to 0 using the volume button.

Page 1 of the adjustment process

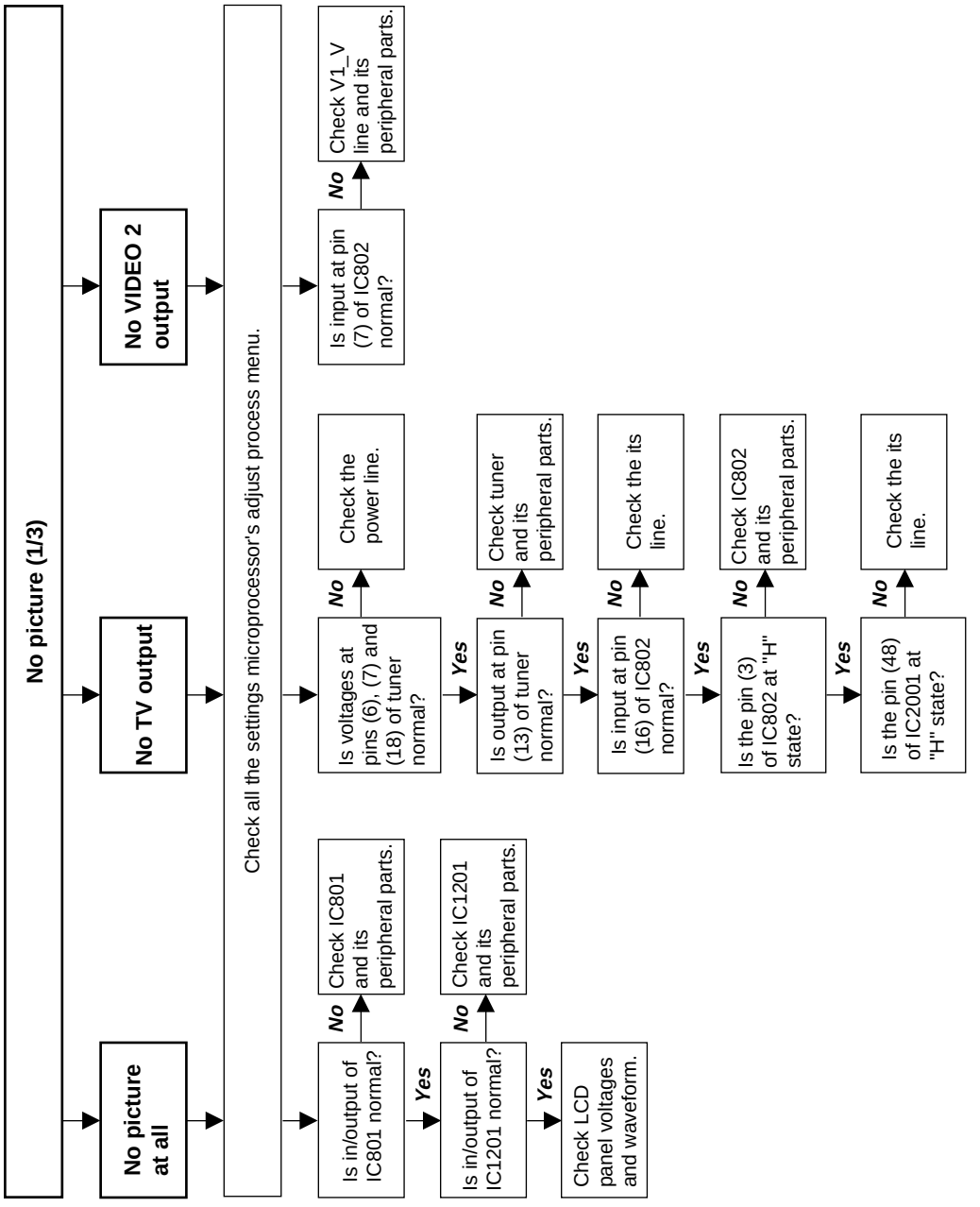


Note∗:13=LC-13S1E, 15=LC-15S1E
Afterwards, perform the operation check to confirm that the lamp error detection does not function.

TROUBLE SHOOTING TABLE



TROUBLE SHOOTING TABLE (Continued)



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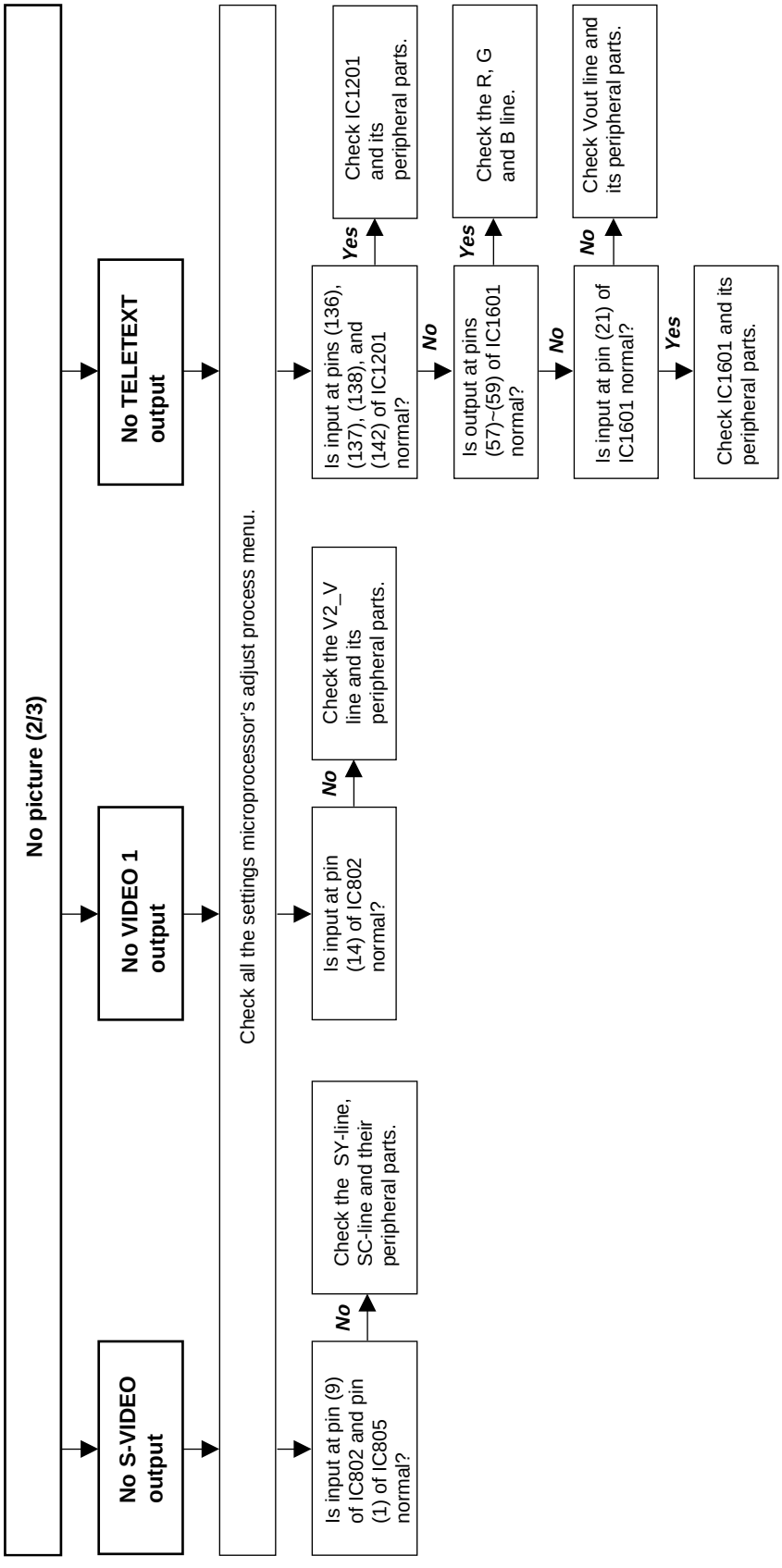

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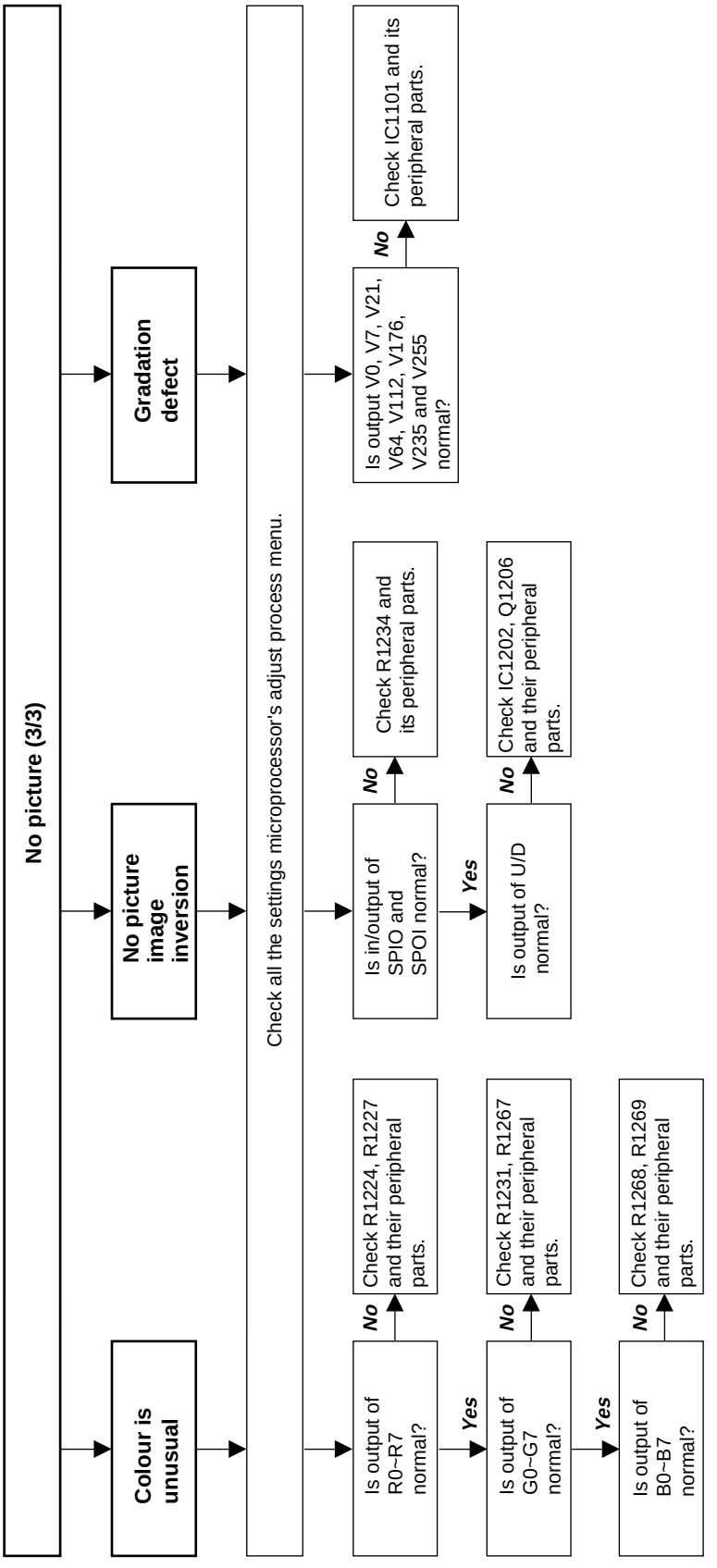

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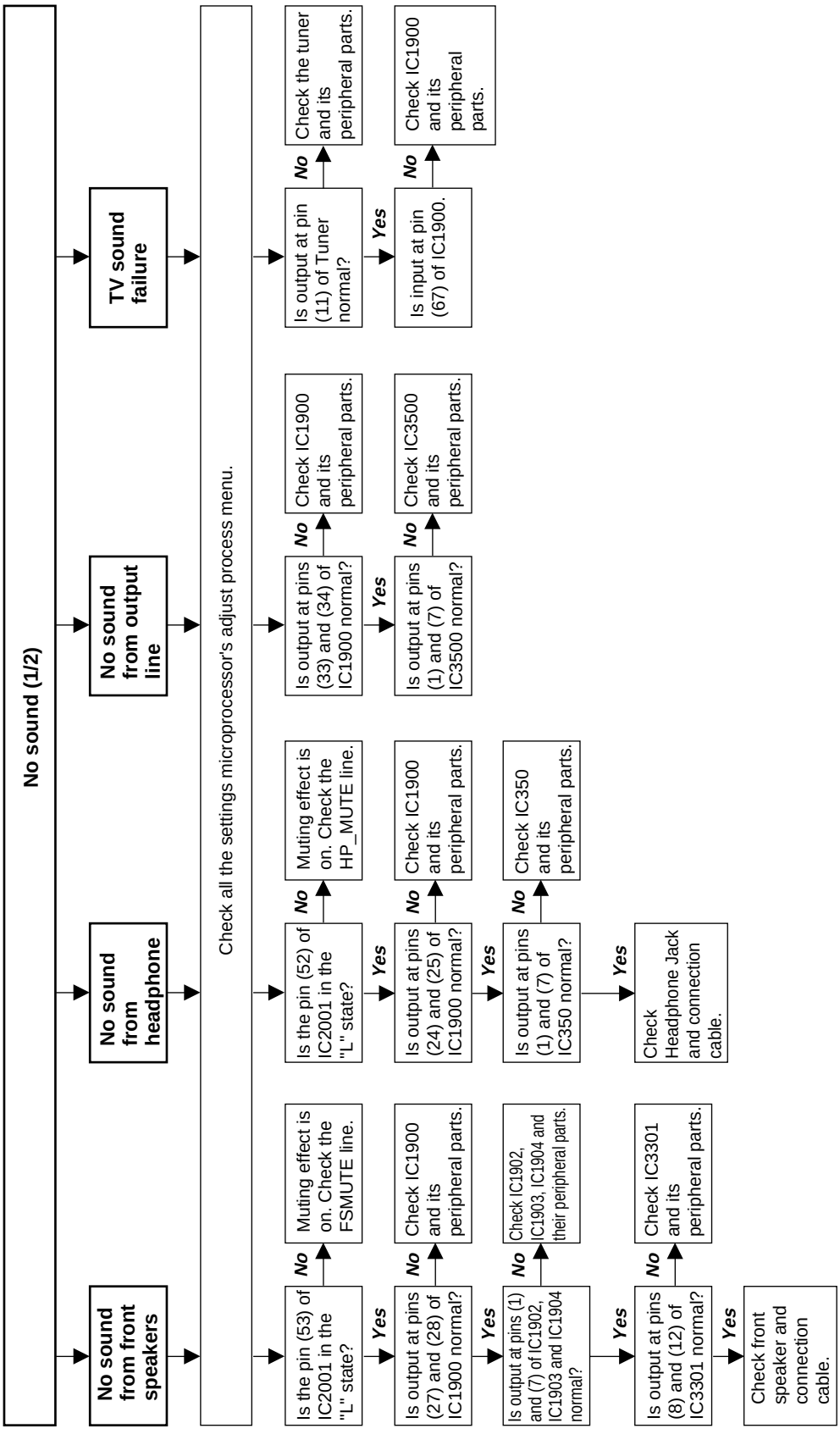

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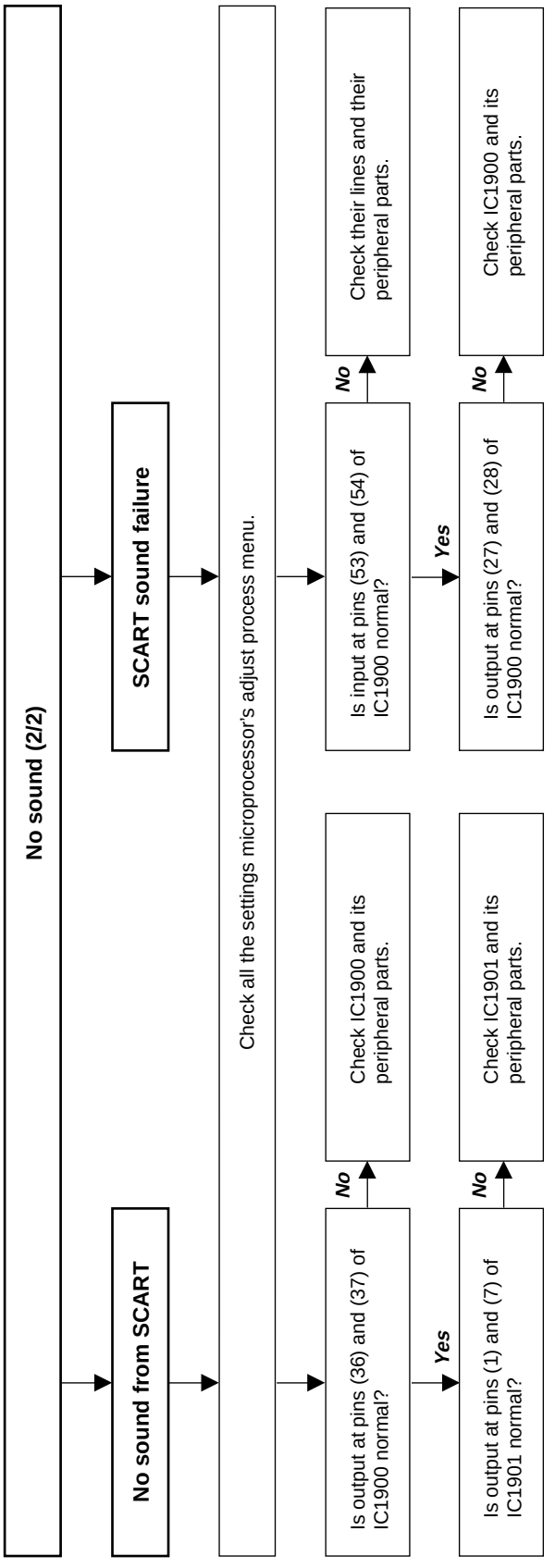
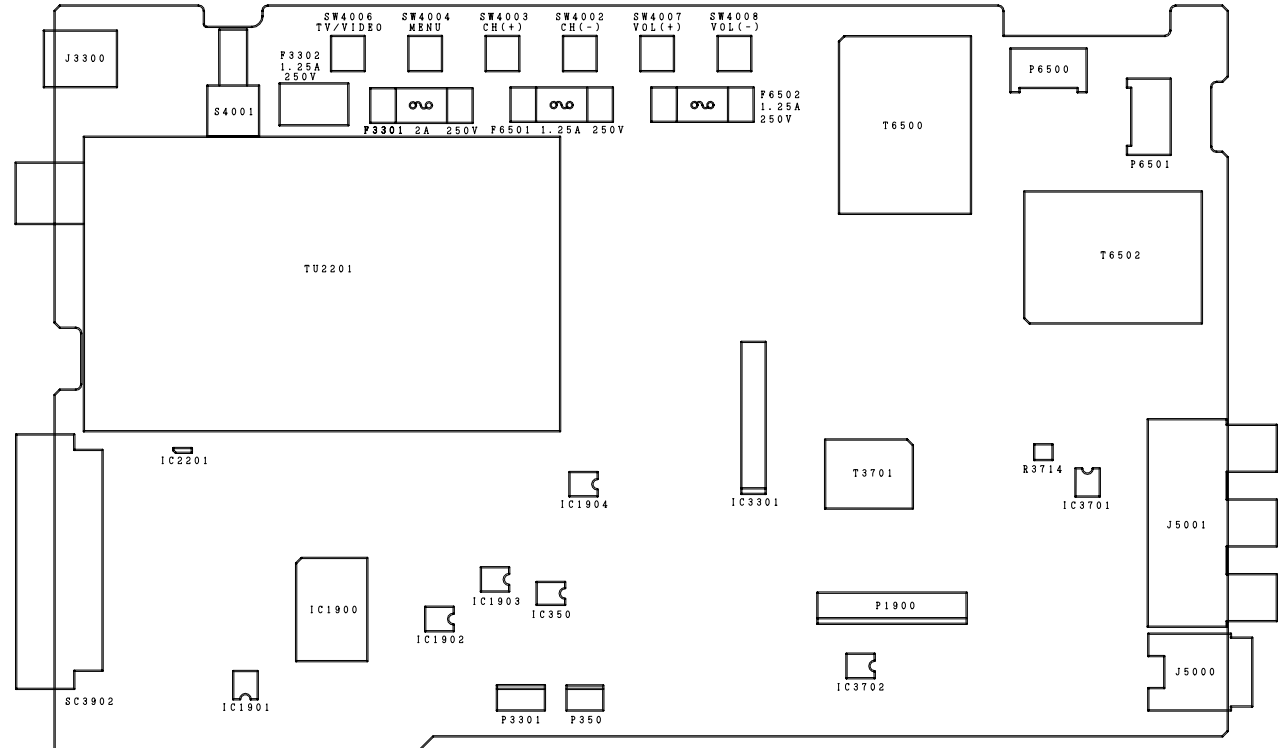
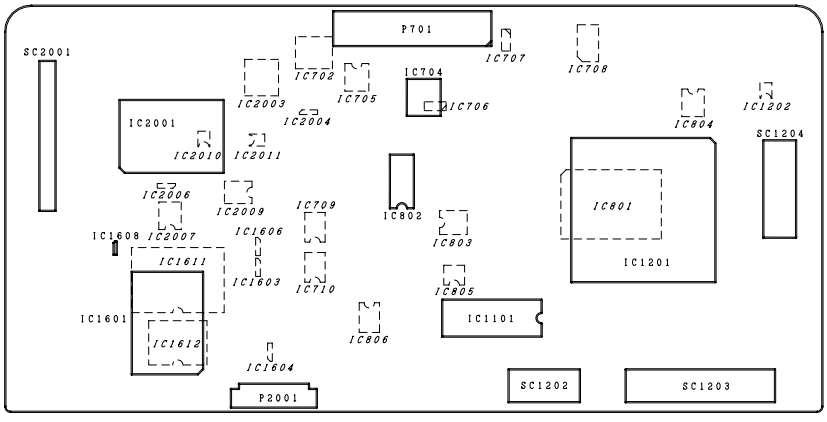


CHASSIS LAYOUT

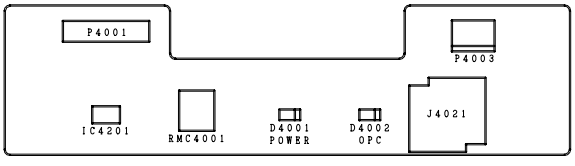
SUB Unit



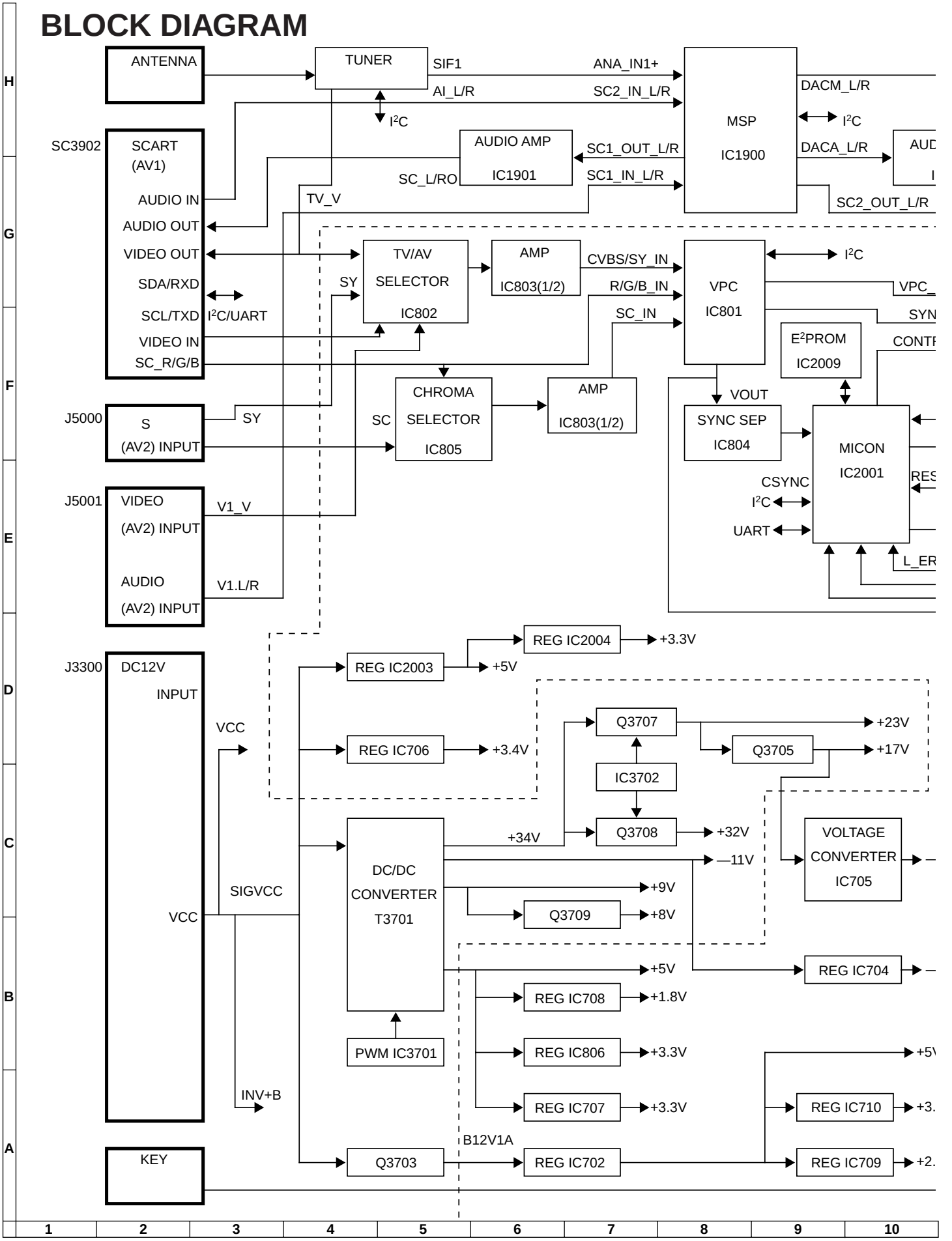
MAIN Unit

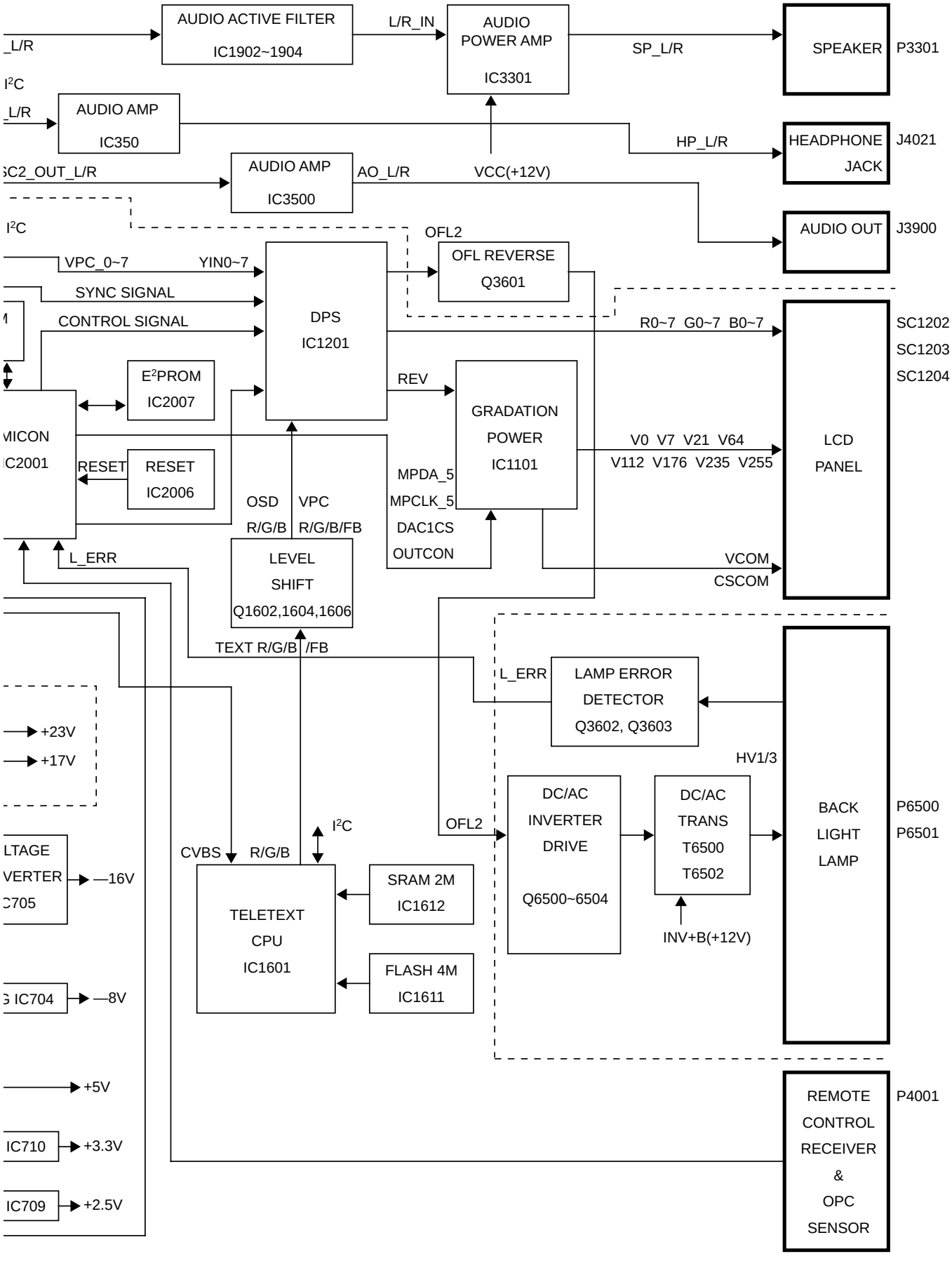


R/C, LED Unit



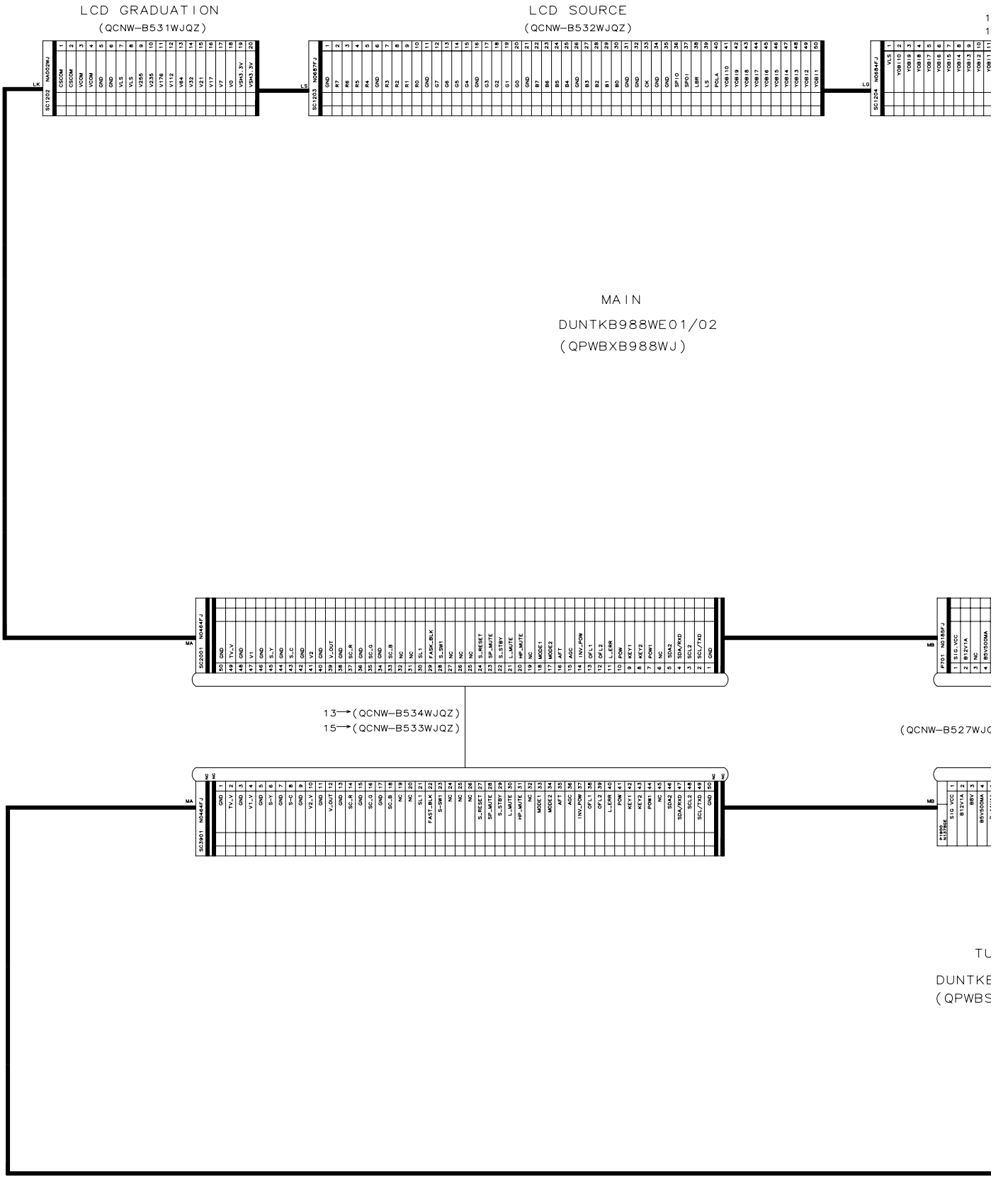
BLOCK DIAGRAM

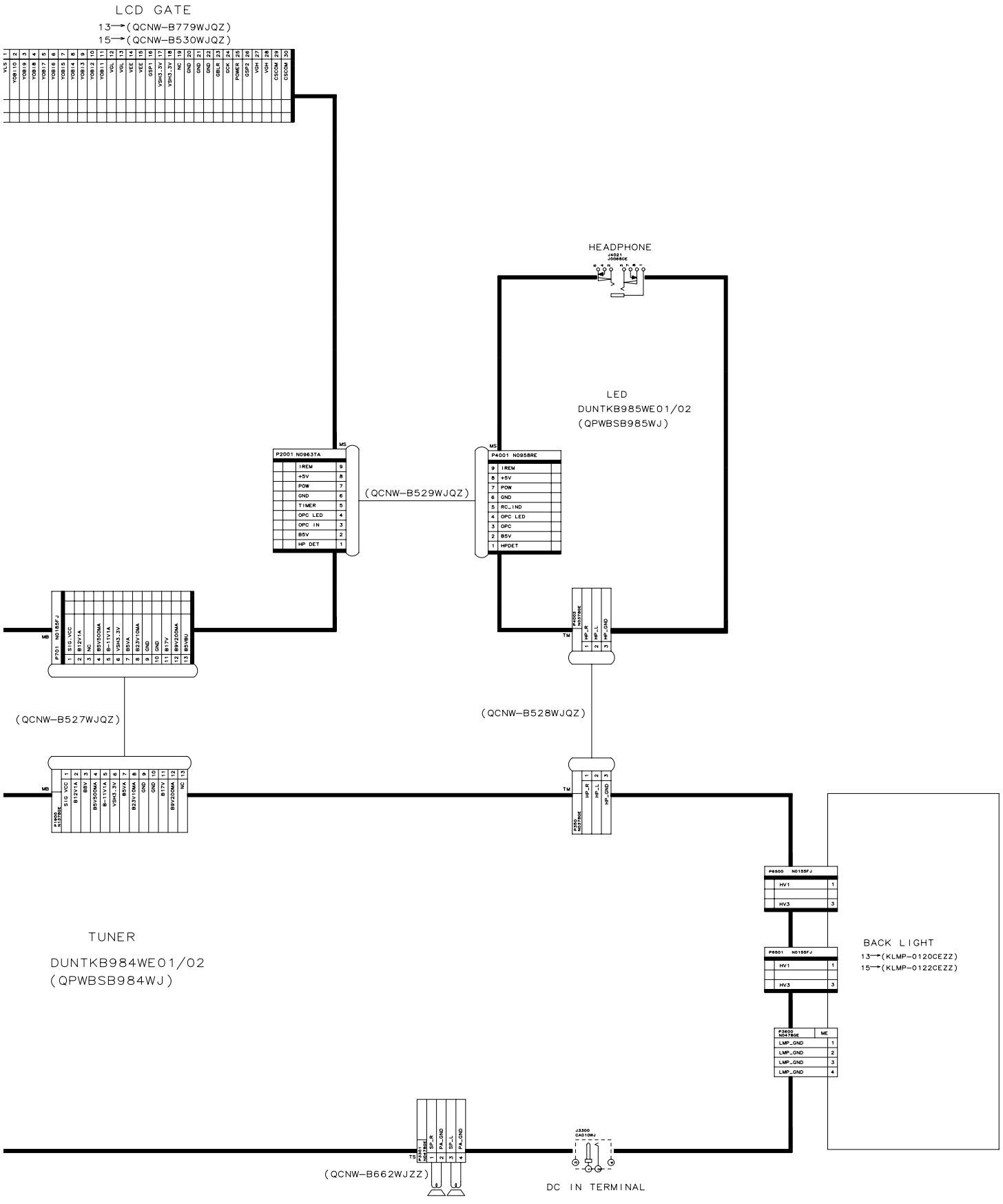




10	11	12	13	14	15	16	17	18	19

OVERALL WIRING DIAGRAM

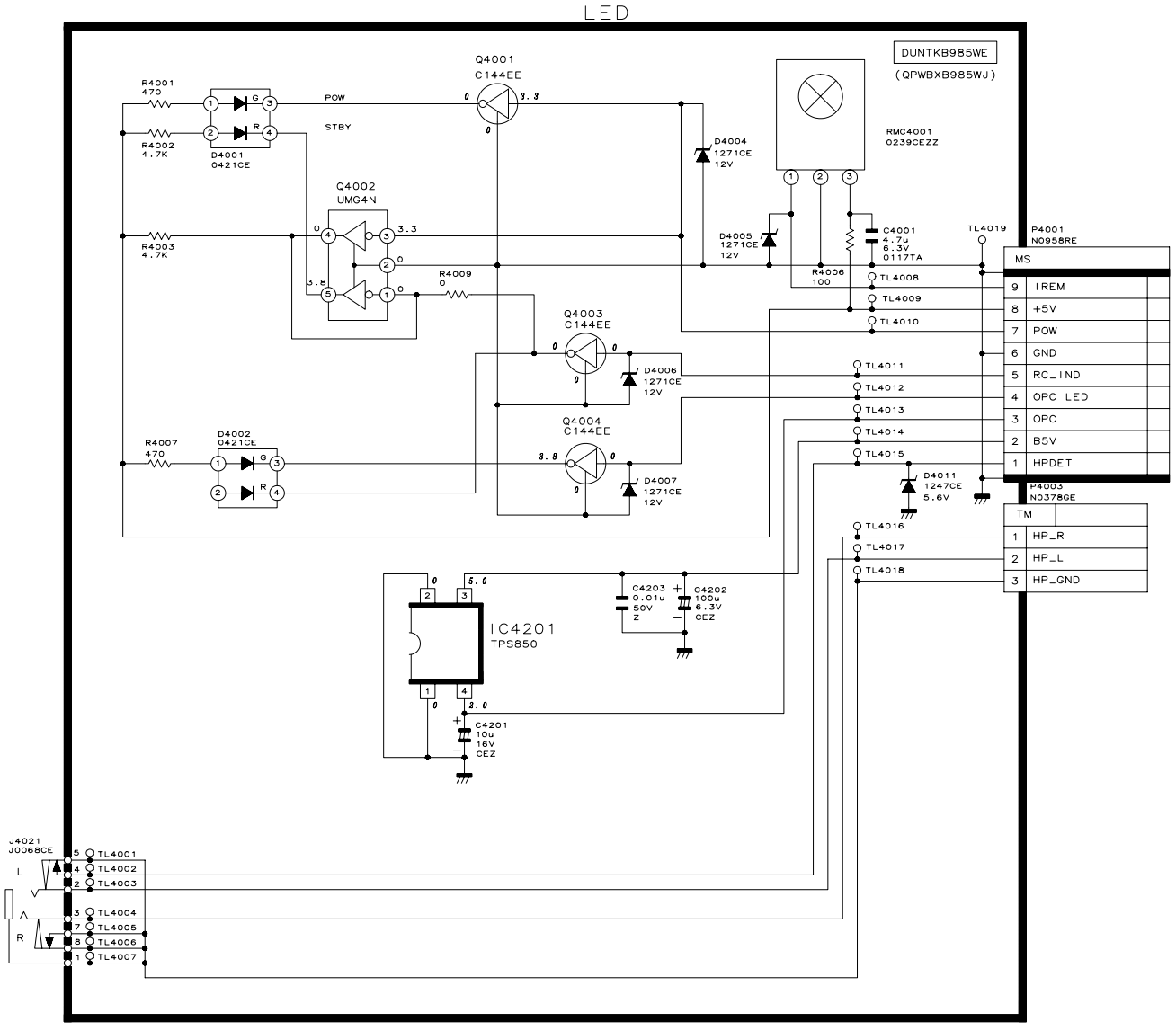




10	11	12	13	14	15	16	17	18	19

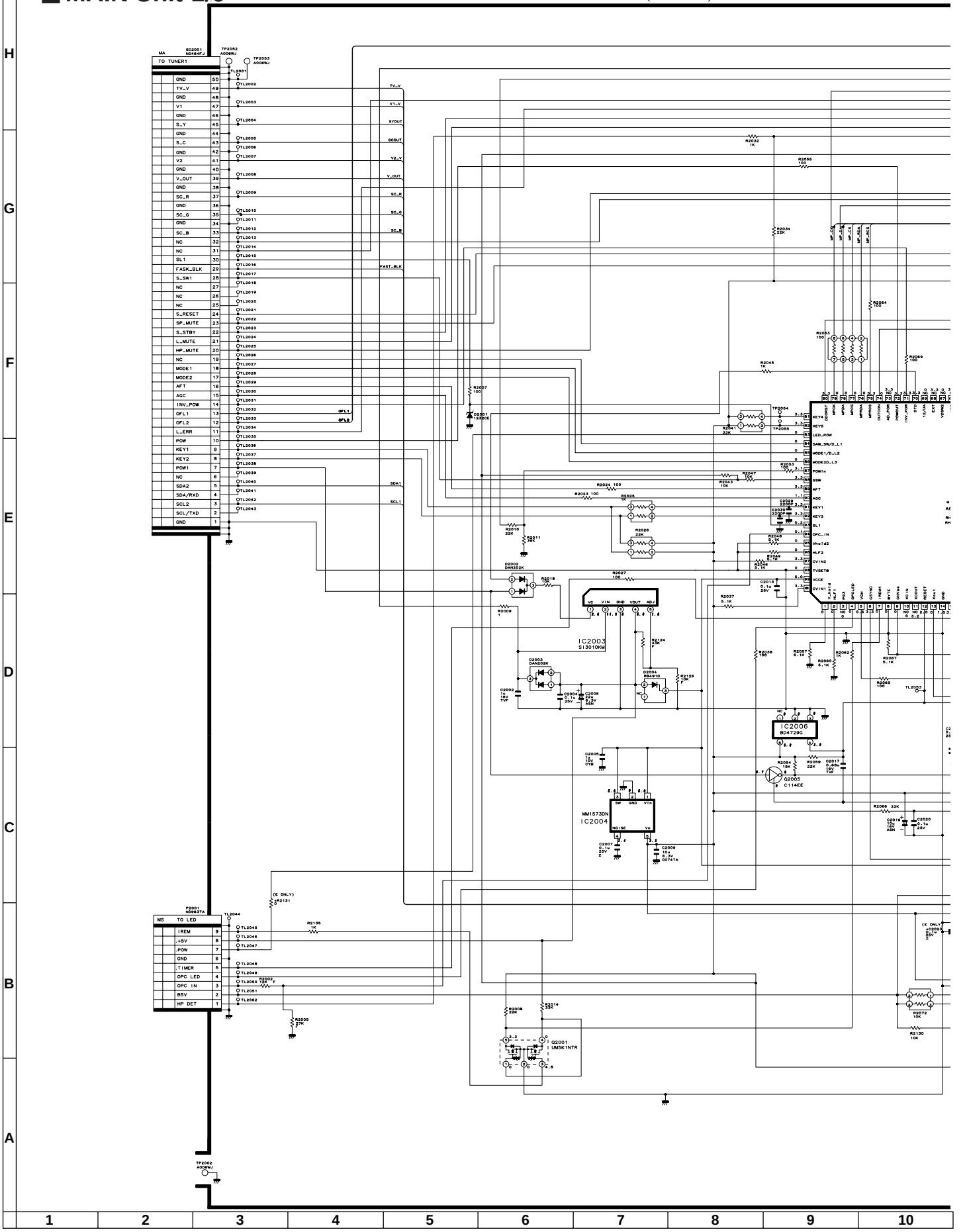
SCHEMATIC DIAGRAM

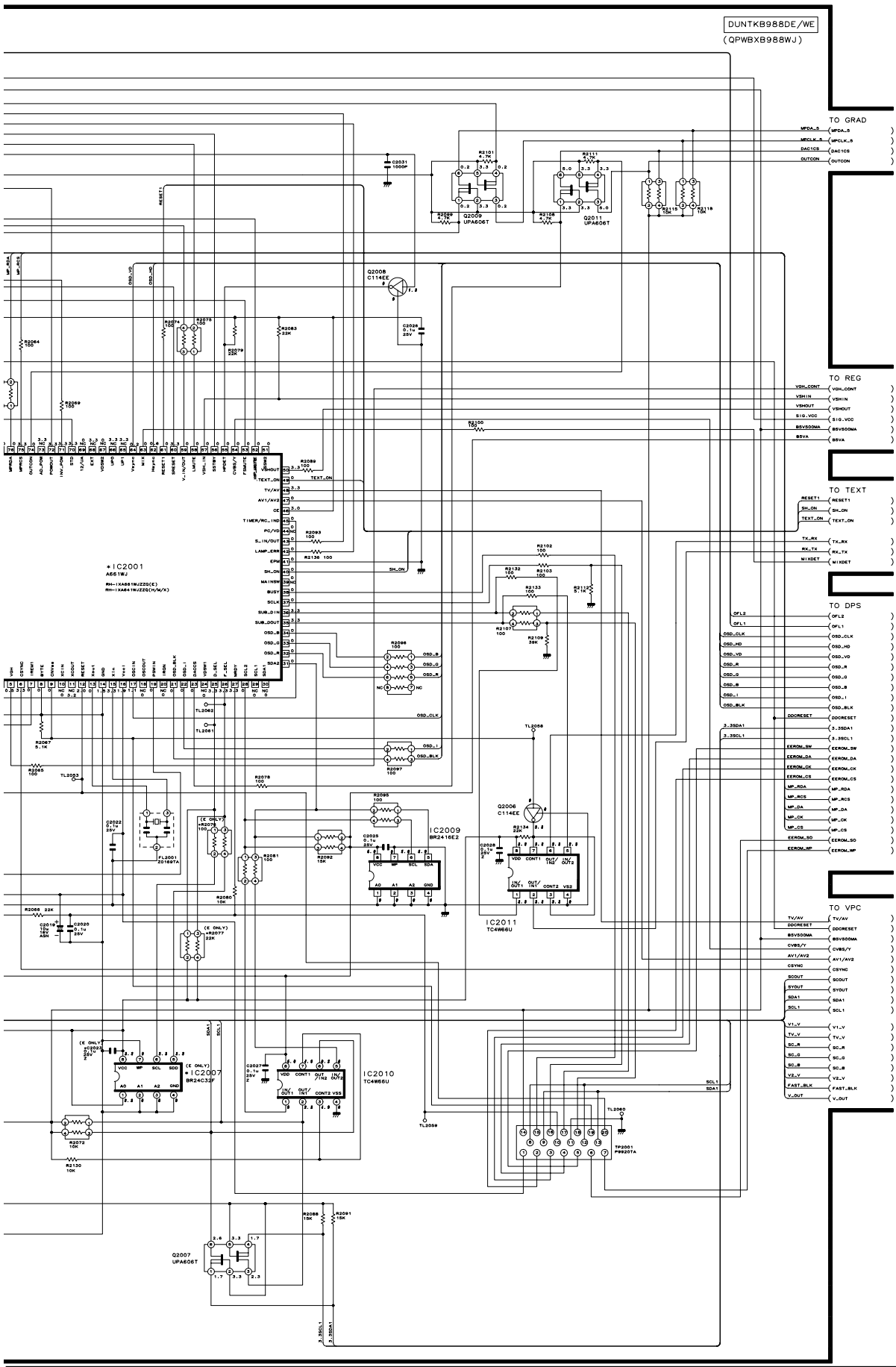
■ R/C, LED Unit



■ MAIN Unit-1/6

MAIN1 (MICON)





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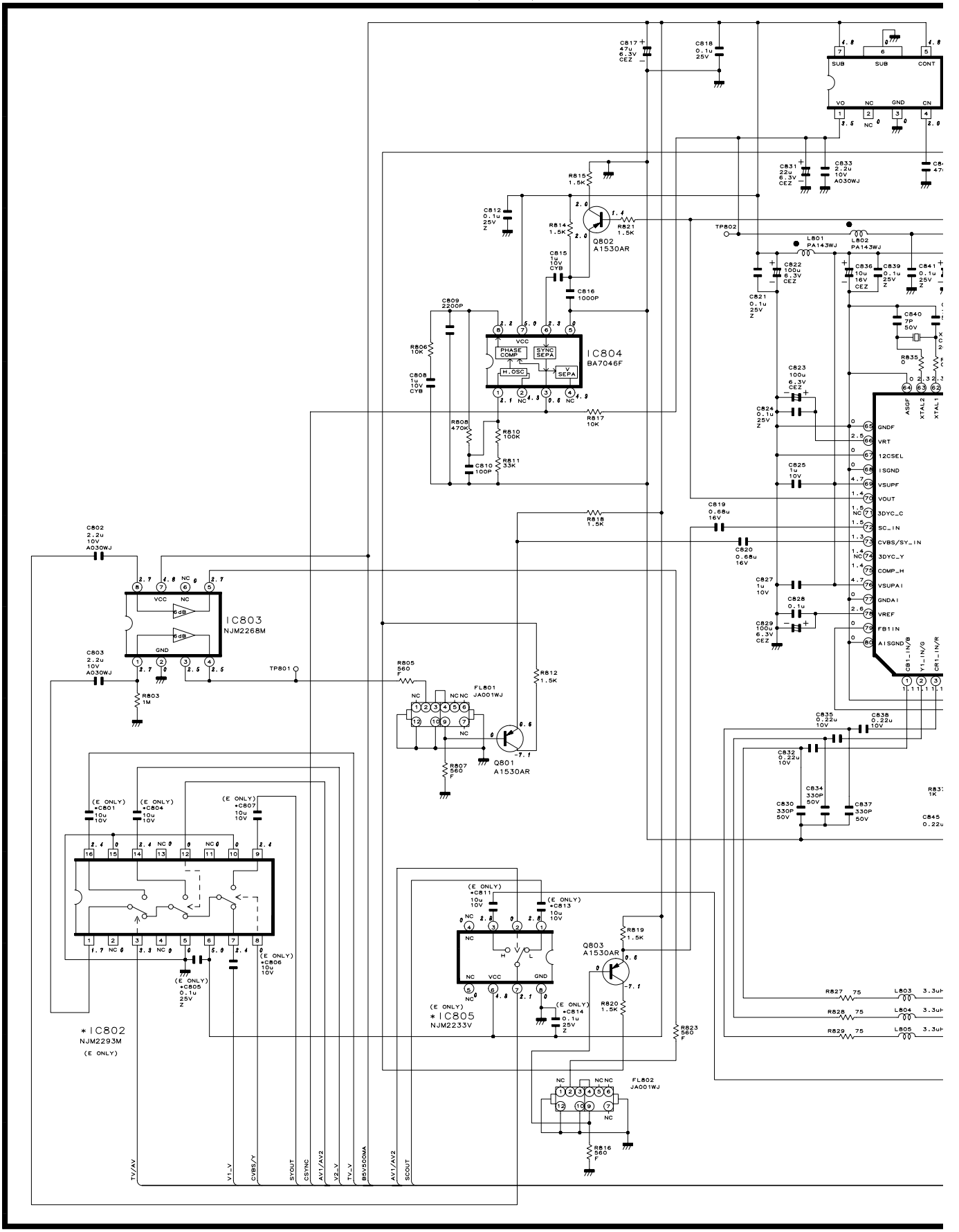
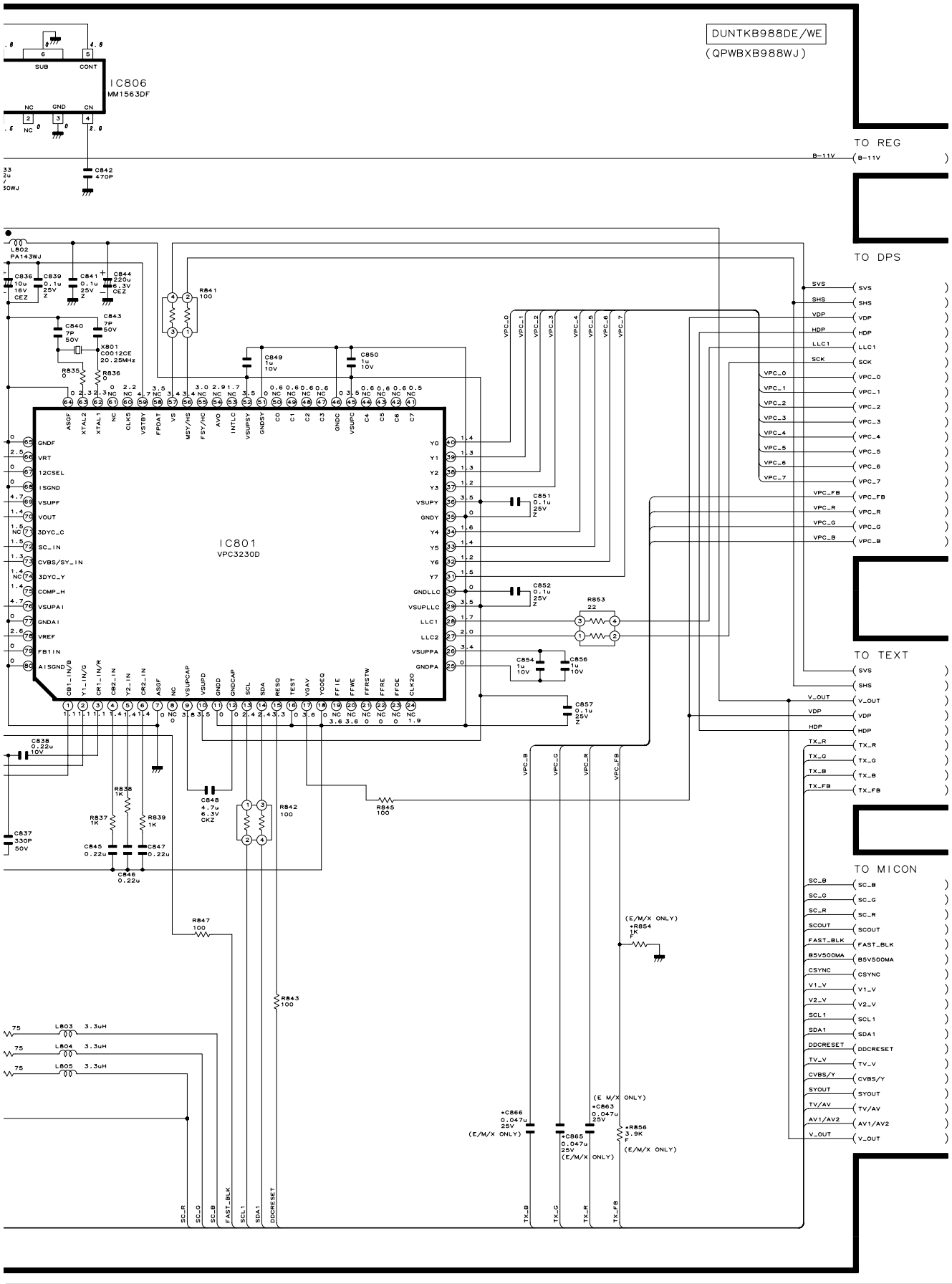
■ MAIN Unit-2/6

MAIN2 (VPC)





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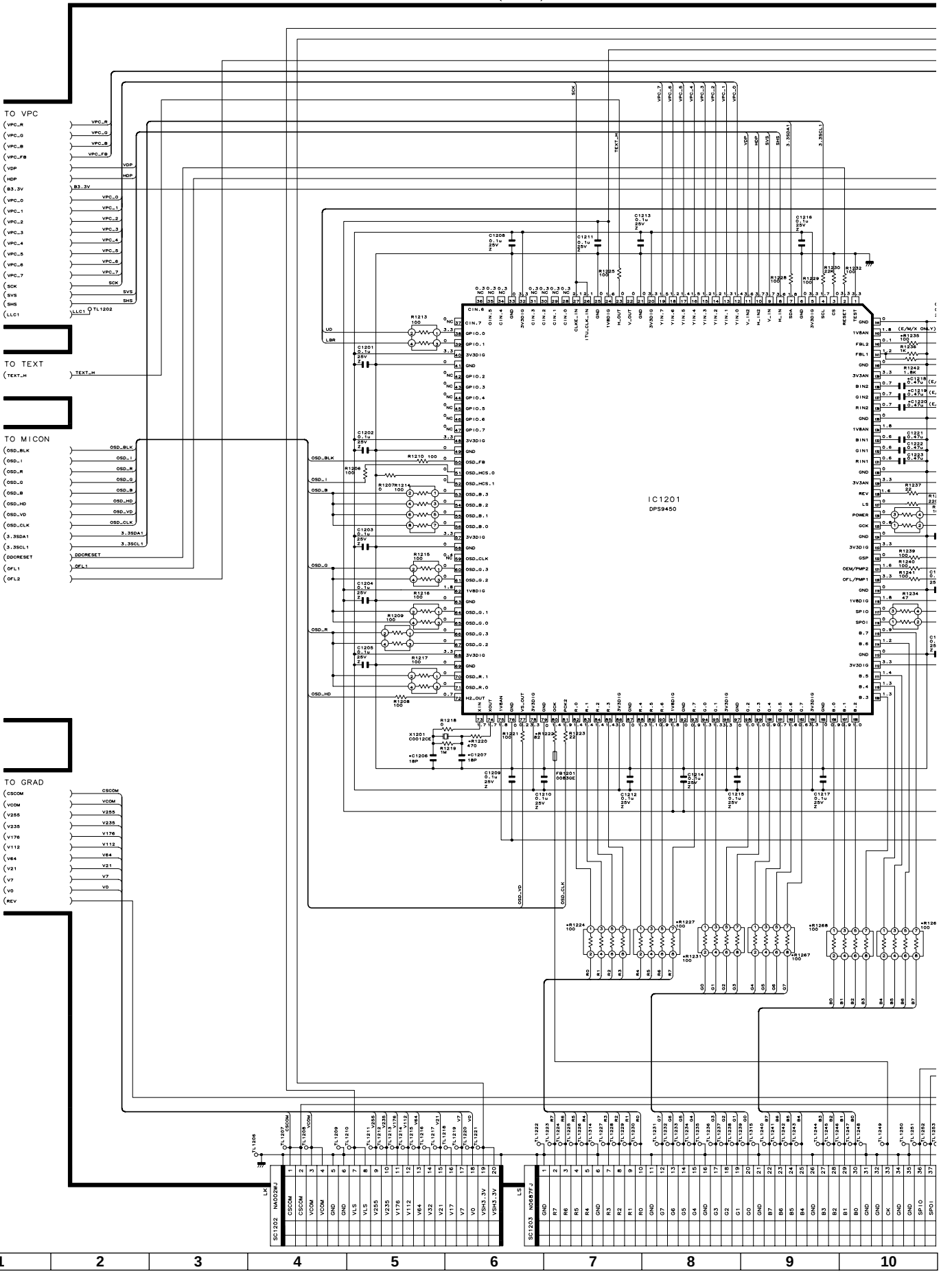
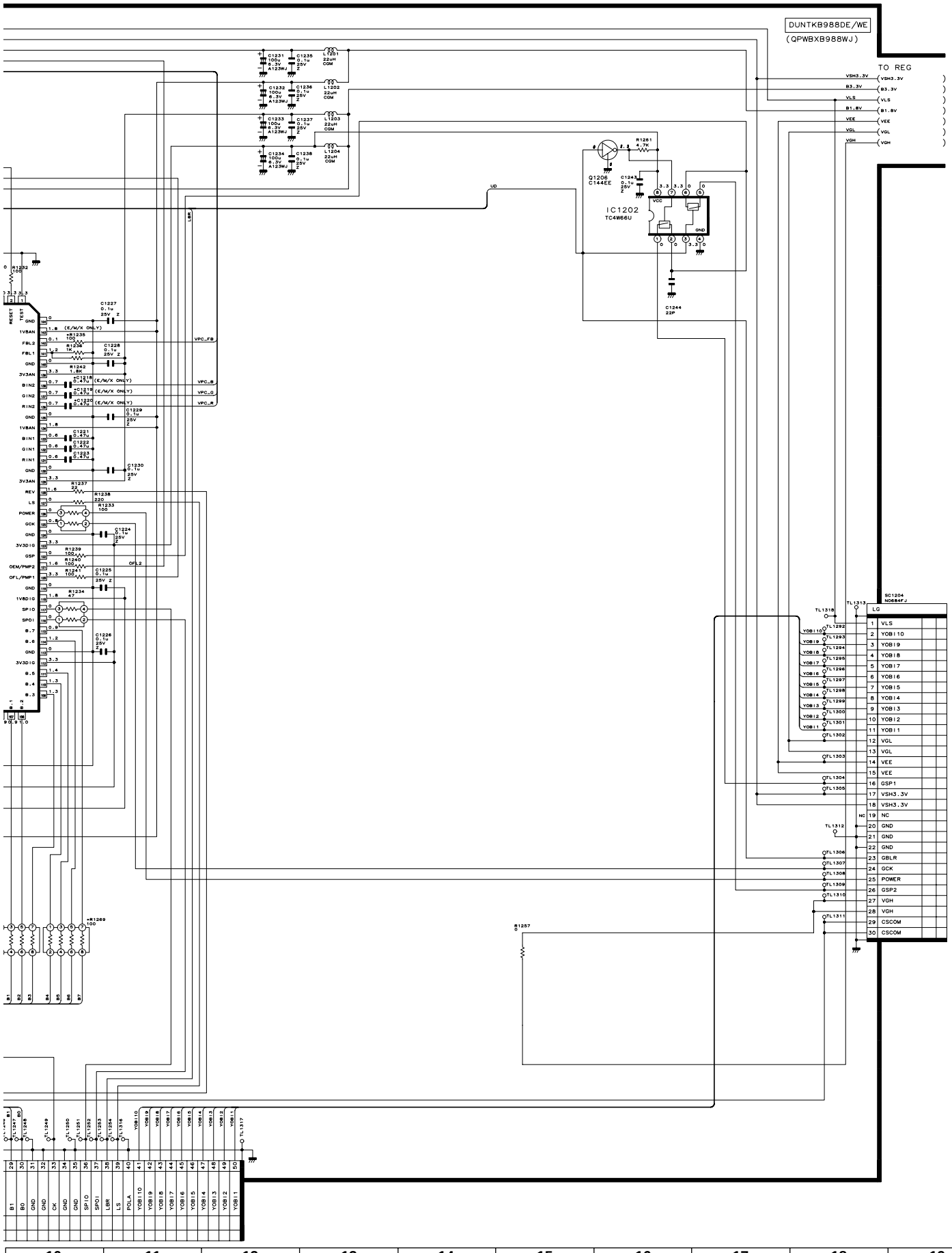
■ MAIN Unit-3/6

MAIN3 (DPS)





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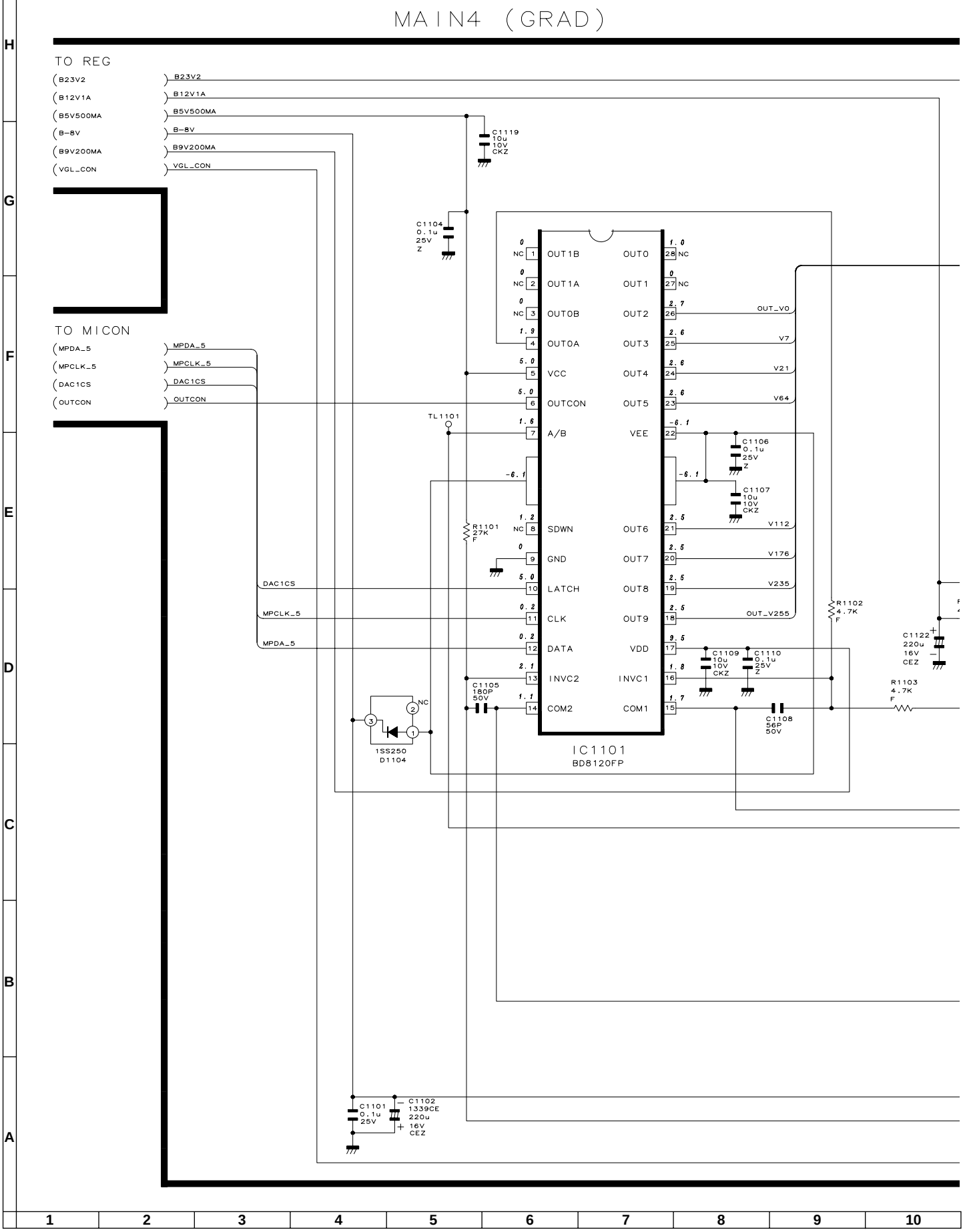
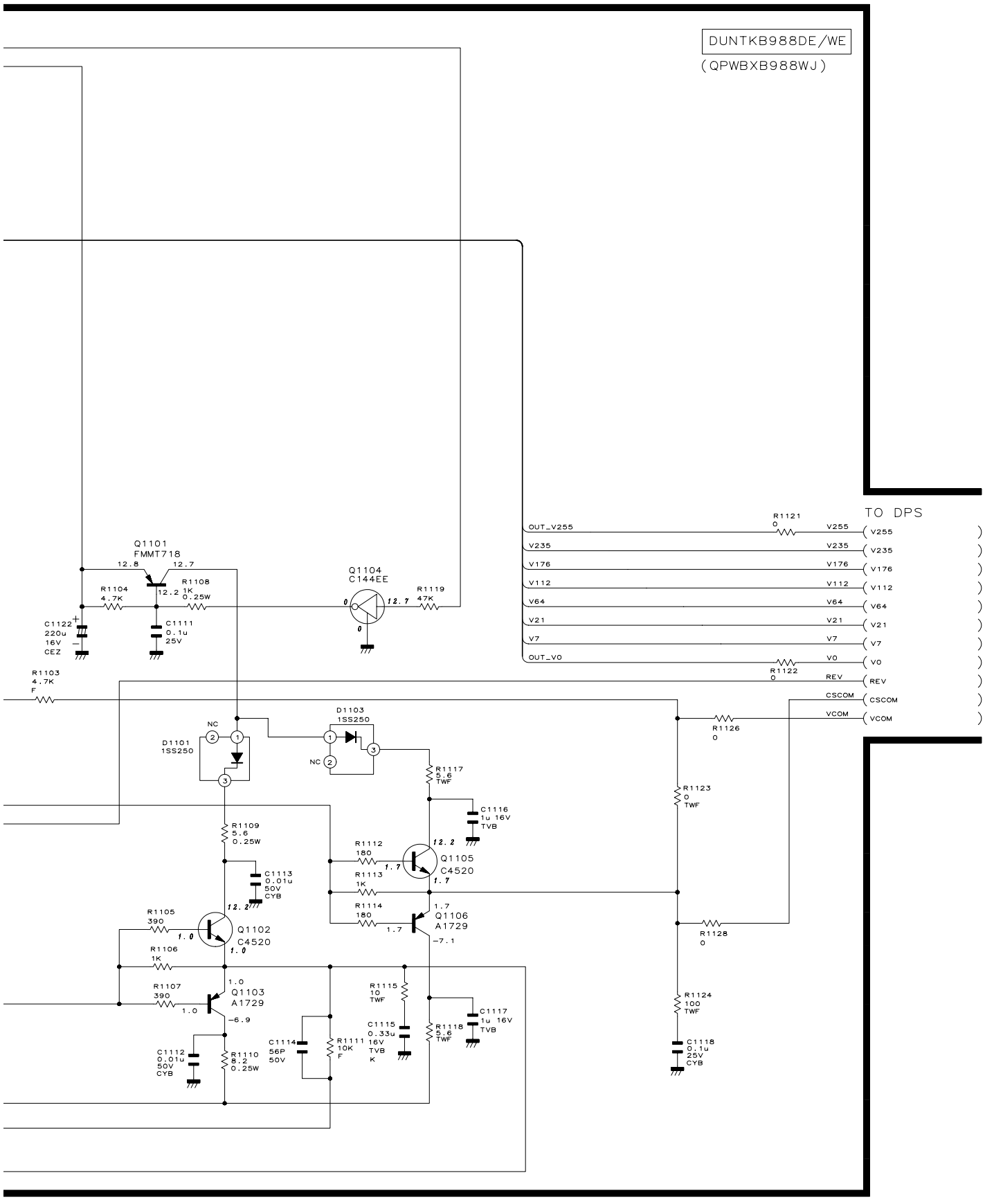
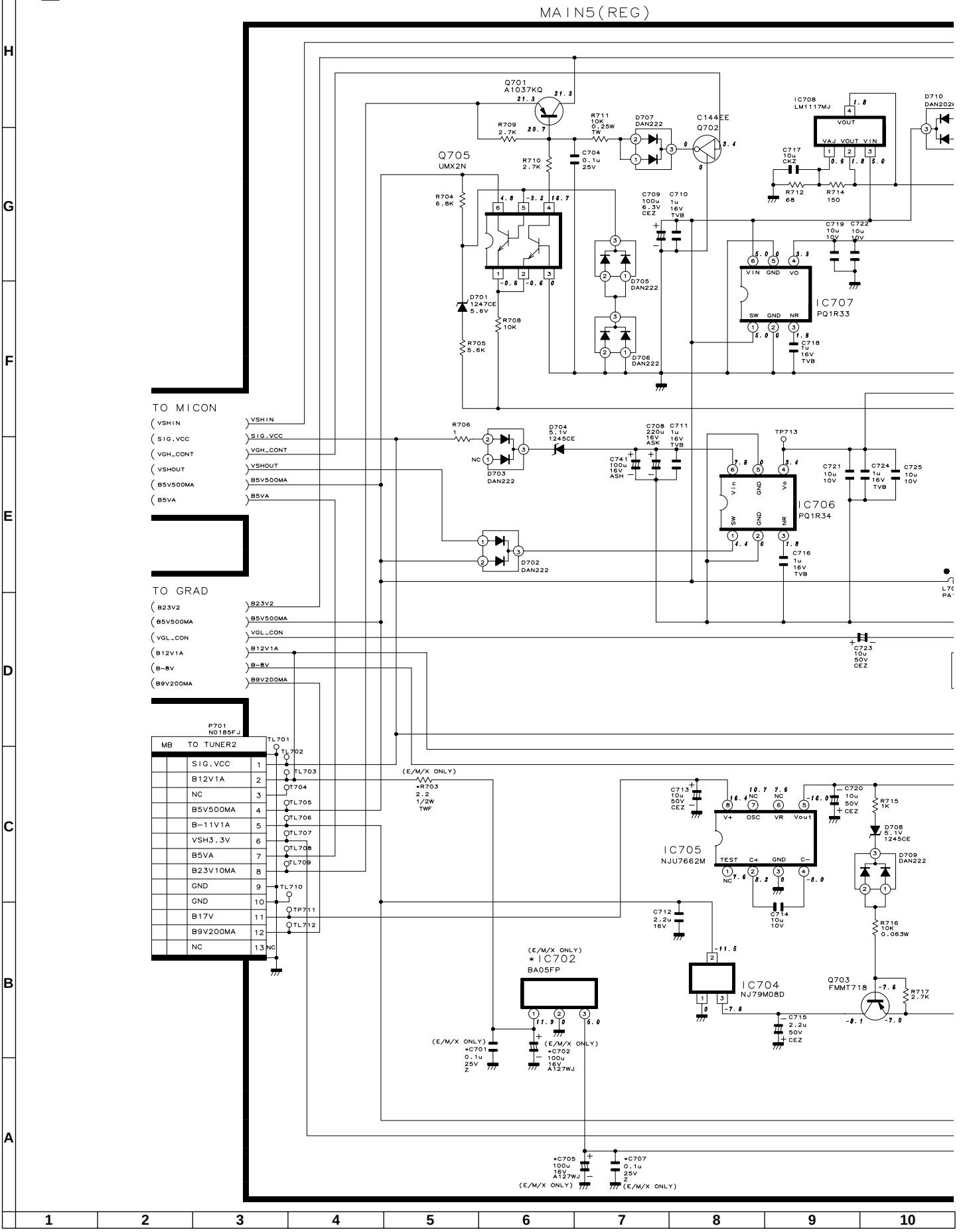
■ MAIN Unit-4/6


MAIN4 (GRAD)
TO REG
B23V2
B12V1A
B5V500MA
B-8V
B9V200MA
VGL_CON
TO MICON
MPDA_5
MPCLK_5
DAC1CS
OUTCON
C1119 10u 10V CKZ
C1104 0.1u 25V Z
TL1101
R1101 27K F
C1105 180P 50V
1SS250 D1104
C1101 0.1u 25V
C1102 1339CE 220u 16V CEZ
OUT1B
OUT1A
OUT0B
OUT0A
VCC
OUTCON
A/B
SDWN
GND
LATCH
CLK
DATA
INVC2
COM2
OUT0
OUT1
OUT2
OUT3
OUT4
OUT5
VEE
OUT6
OUT7
OUT8
OUT9
VDD
INVC1
COM1
OUT_VO
V7
V21
V64
V112
V176
V235
OUT_V255
C1106 0.1u 25V Z
C1107 10u 10V CKZ
C1109 10u 10V CKZ
C1110 0.1u 25V Z
C1108 56P 50V
R1102 4.7K F
R1103 4.7K F
C1122 220u 16V CEZ
IC1101
BD8120FP


DUNTKB988DE/WE
(QPWBXB988WJ)
TO DPS
OUT_V255
V235
V176
V112
V64
V21
V7
OUT_V0
REV
CSCOM
VCOM
R1121
R1122
R1126
R1123
R1128
R1124
C1118
Q1101
FMMT718
Q1104
C144EE
R1104
R1108
R1119
C1122
C1111
R1103
D1101
1SS250
D1103
1SS250
R1117
C1116
R1109
R1112
Q1105
C4520
C1113
R1113
R1114
Q1106
A1729
R1105
Q1102
C4520
R1106
R1107
Q1103
A1729
C1112
R1110
C1114
R1111
R1115
C1115
R1118
C1117

■ MAIN Unit-5/6


MAIN5(REG)
TO MICON
VSHIN
SIG.VCC
VGH_CONT
VSHOUT
B5V500MA
B5VA
TO GRAD
B23V2
B5V500MA
VGL_CON
B12V1A
B-8V
B9V200MA
P701
N0185FJ
MB TO TUNER2
SIG.VCC
B12V1A
NC
B5V500MA
B-11V1A
VSH3.3V
B5VA
B23V10MA
GND
GND
B17V
B9V200MA
NC
Q701
A1037KQ
Q705
UMX2N
Q702
C144EE
D701
1247CE
5.6V
D702
DAN222
D703
DAN222
D704
5.1V
1245CE
D705
DAN222
D706
DAN222
D707
DAN222
D708
5.1V
1245CE
D709
DAN222
D710
DAN202
IC705
NJU7662M
IC706
PQ1R34
IC707
PQ1R33
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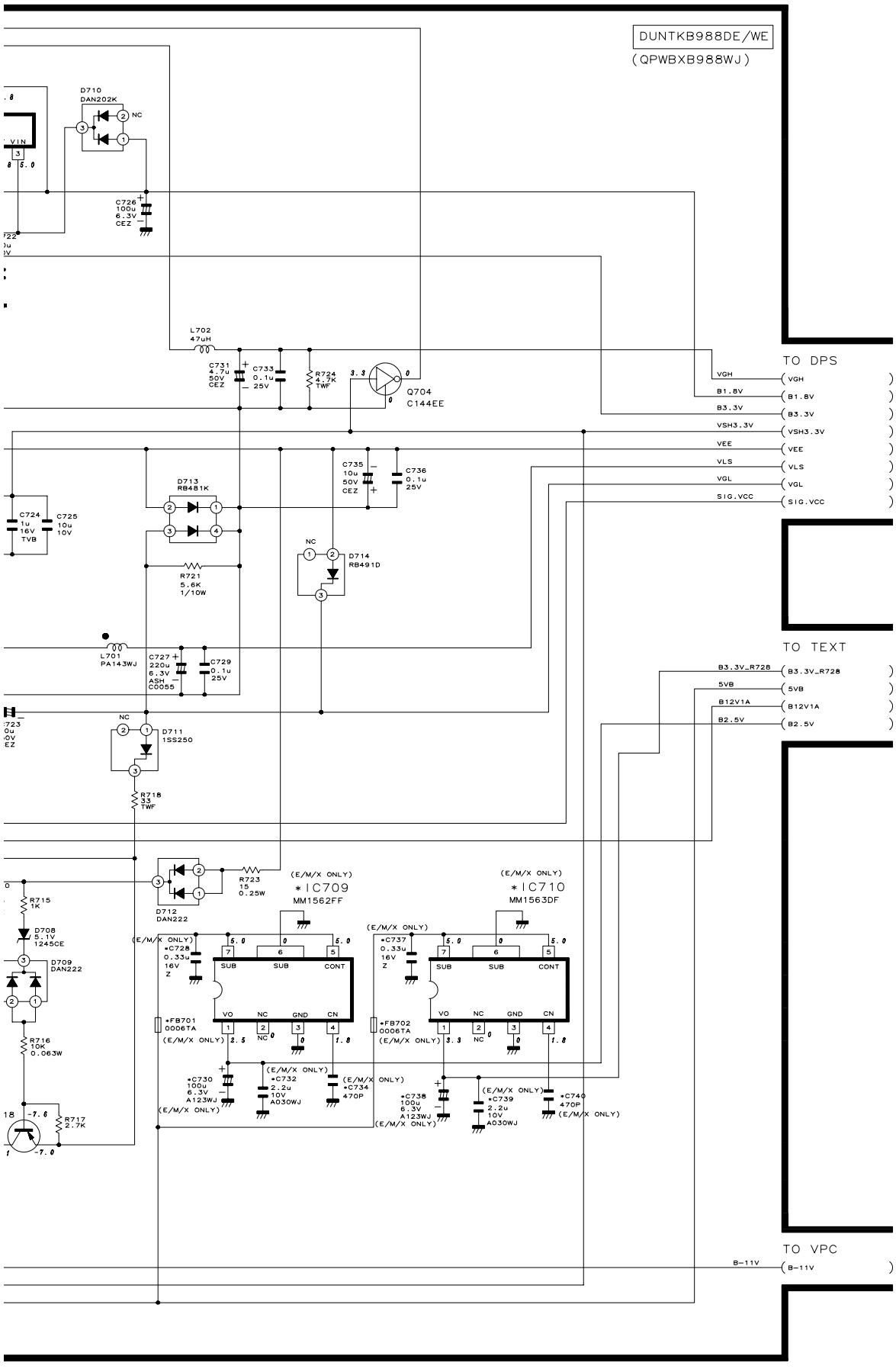
Q703
FMMT718
(E/M/X ONLY)
TP711
TP713



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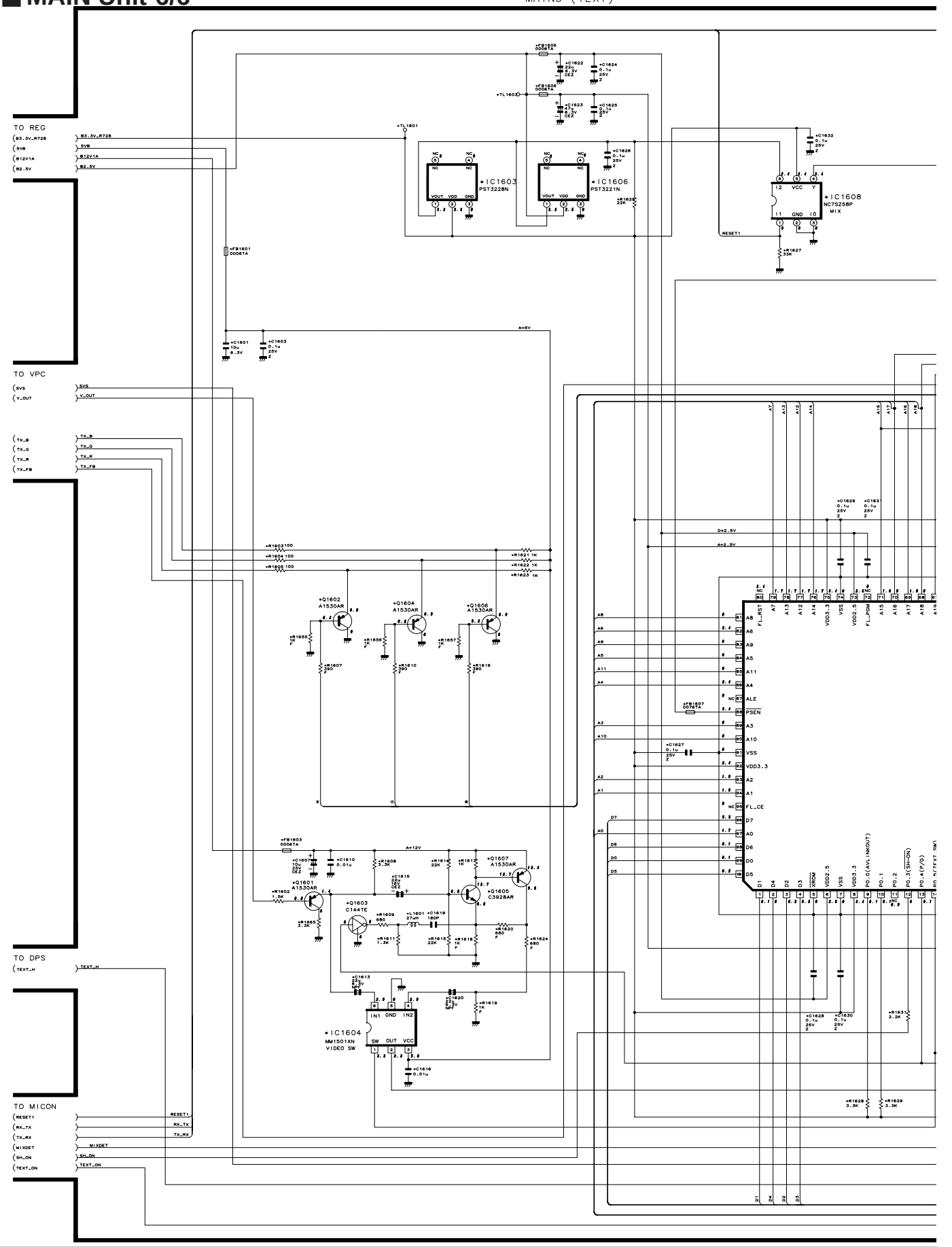
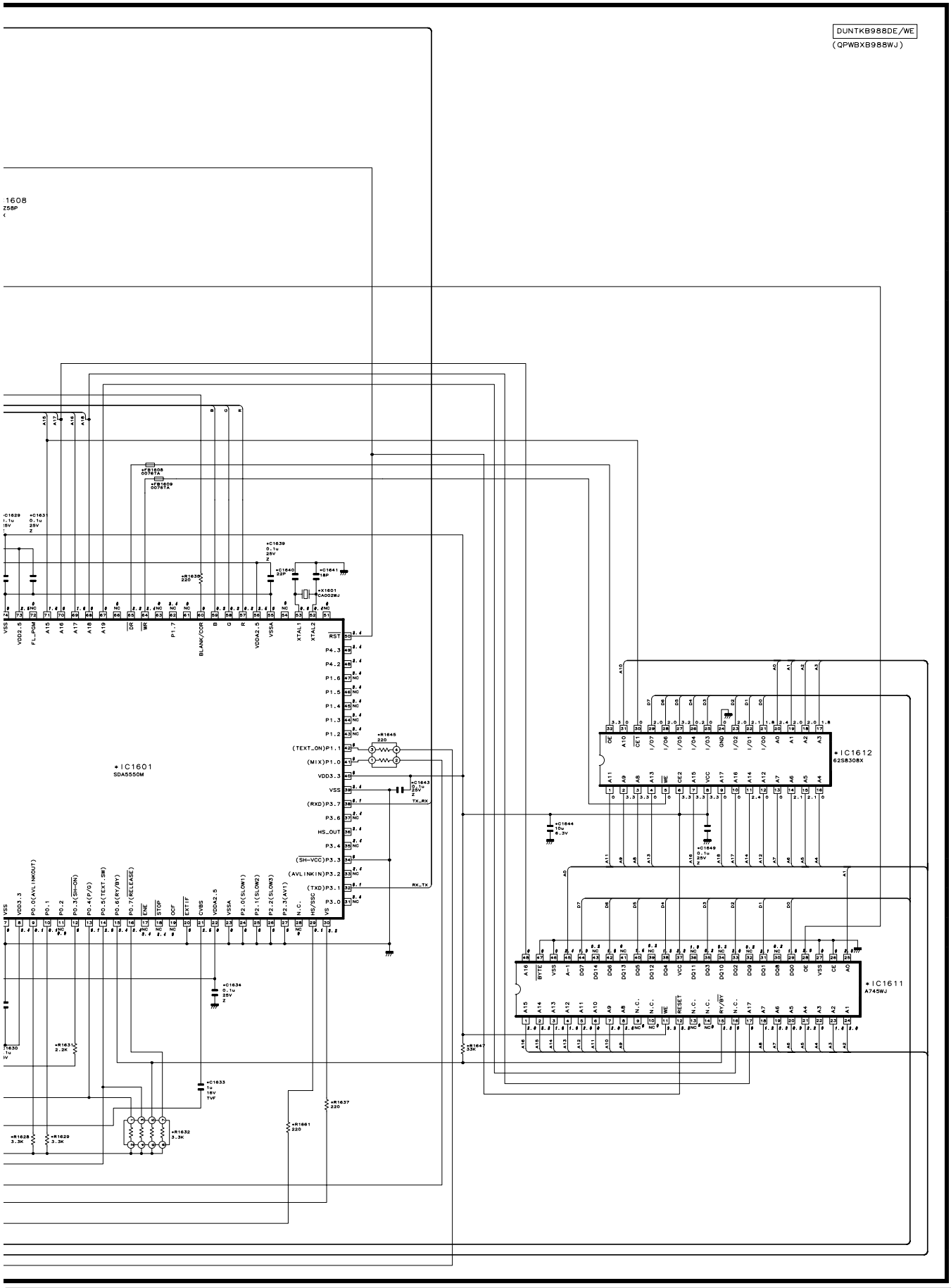
■ MAIN Unit-6/6

MAIN6 (TEXT)



DUNTKB988DE/WE
(QPWBXB988WJ)

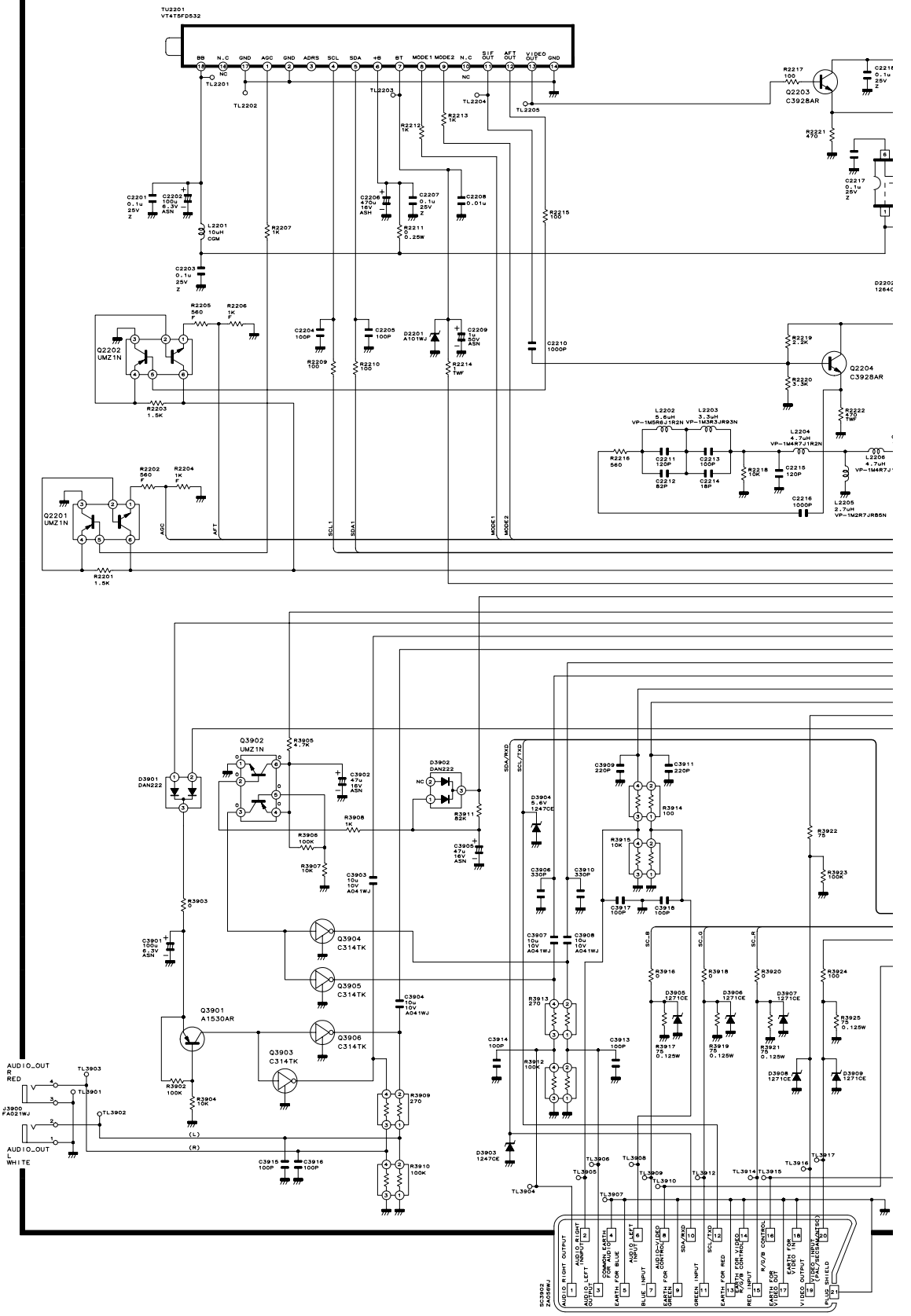


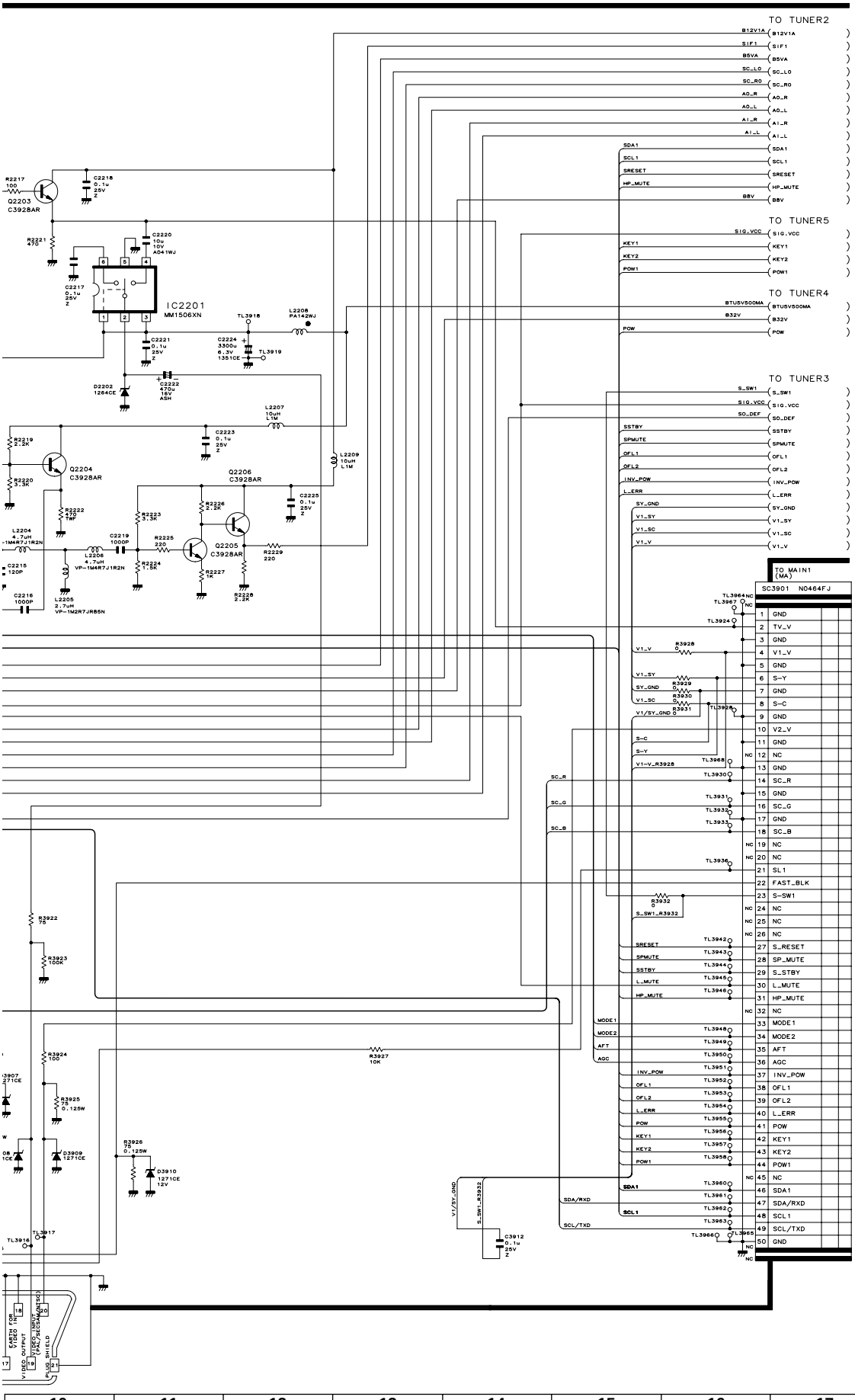
10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-1/5

TUNER1

DUNTKB984DE/WE
(QPWBSB984WJ)

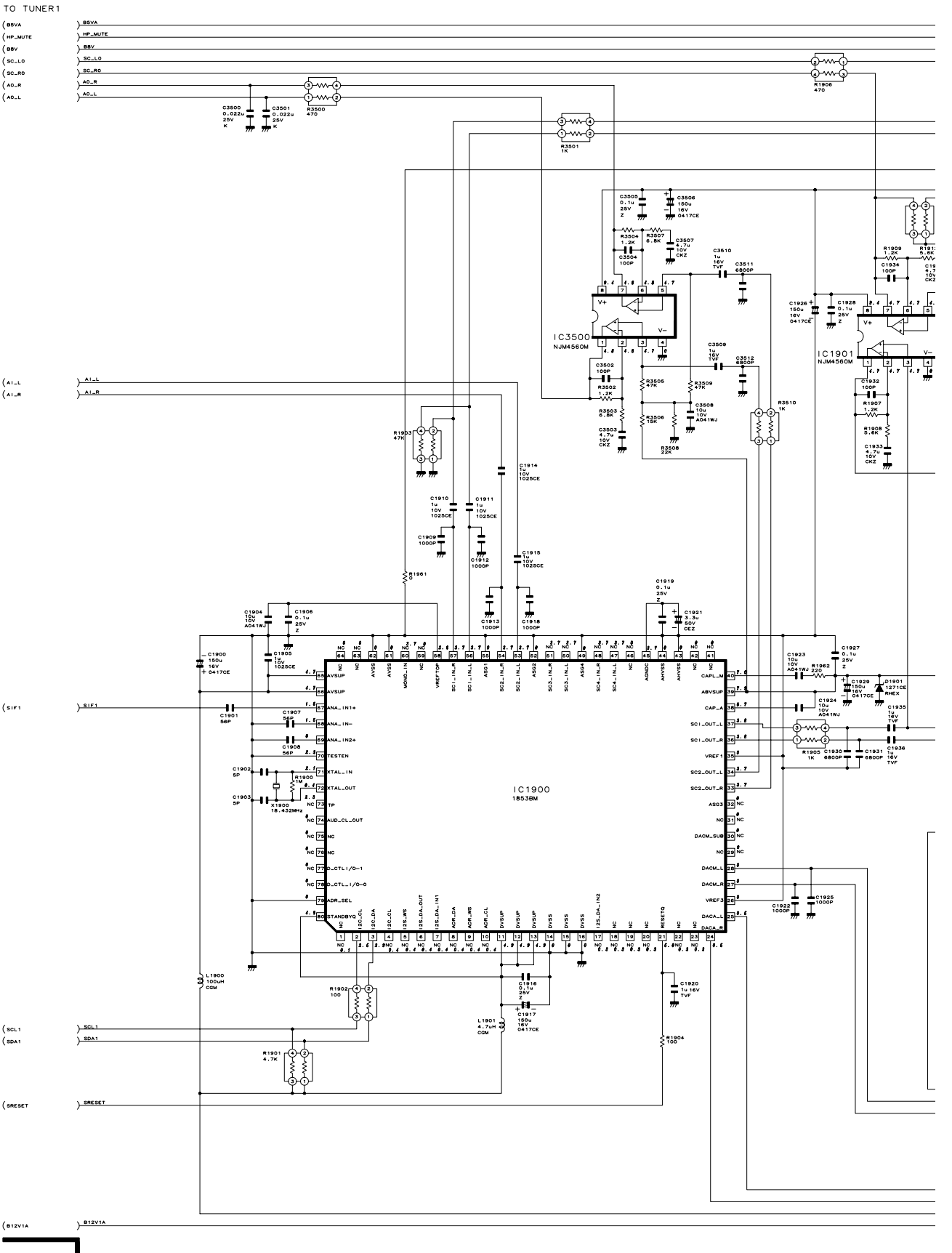


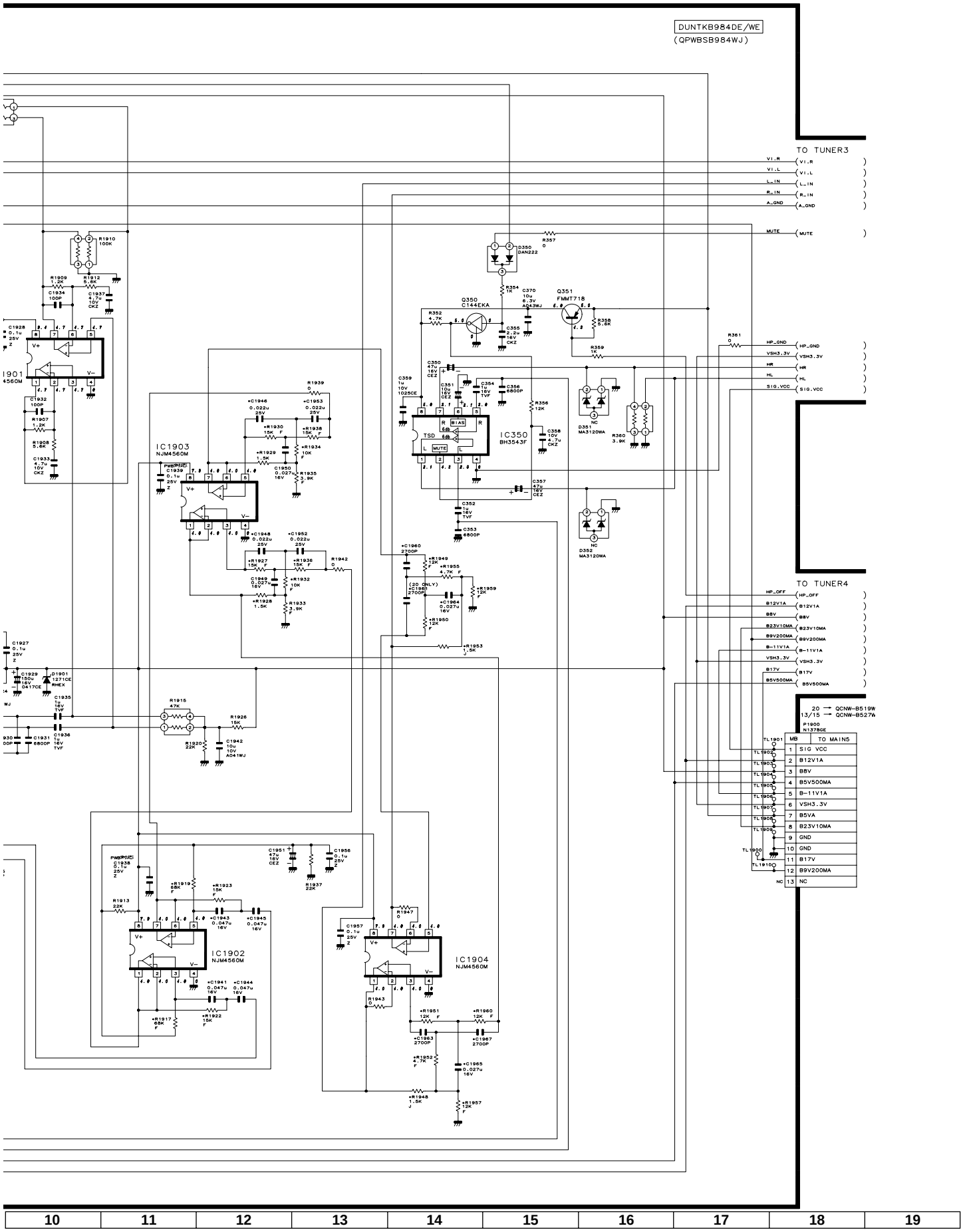


10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-2/5 (LC-13S1E)

TUNER2 (MSP)

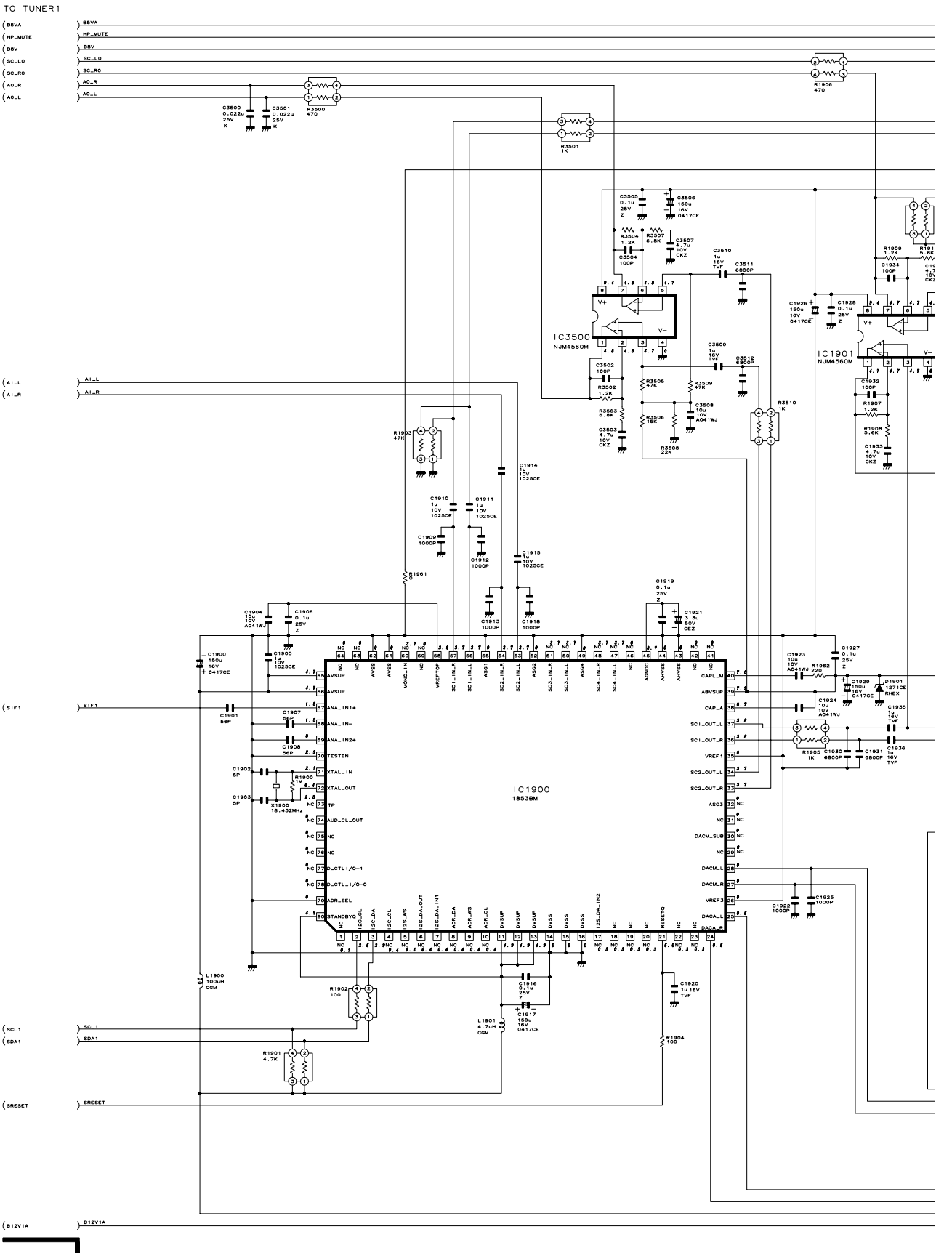


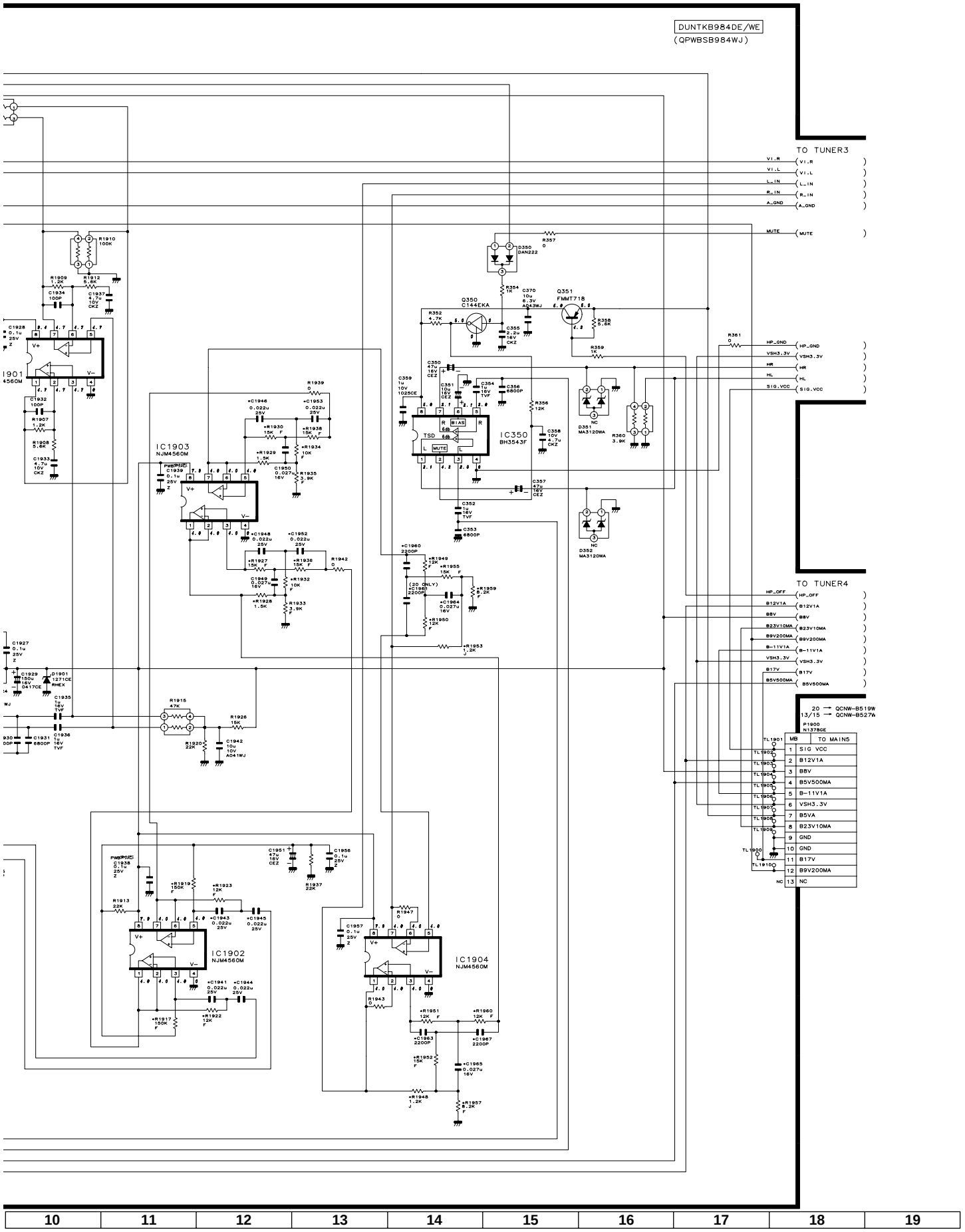


10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-2/5 (LC-15S1E)

TUNER2 (MSP)

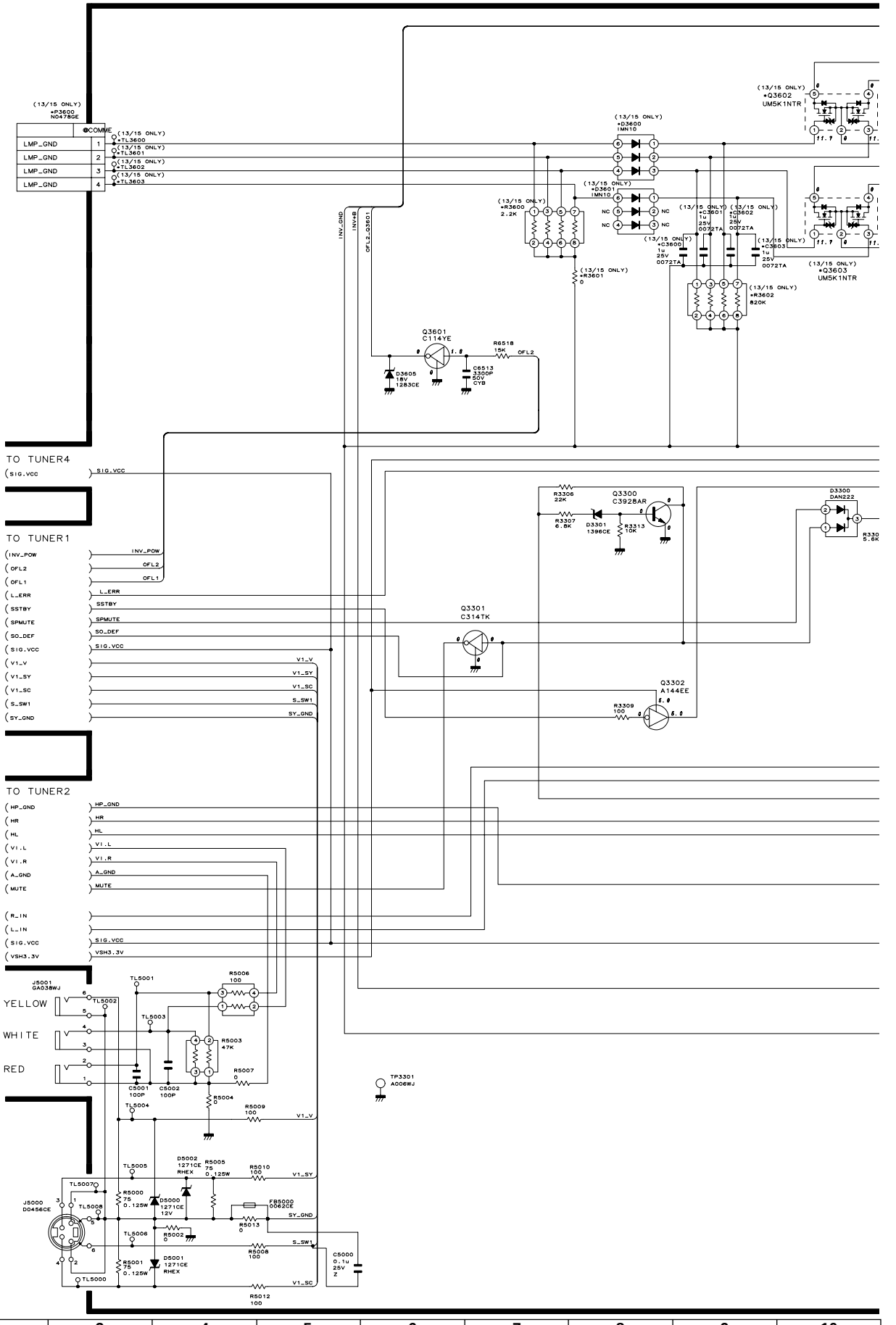


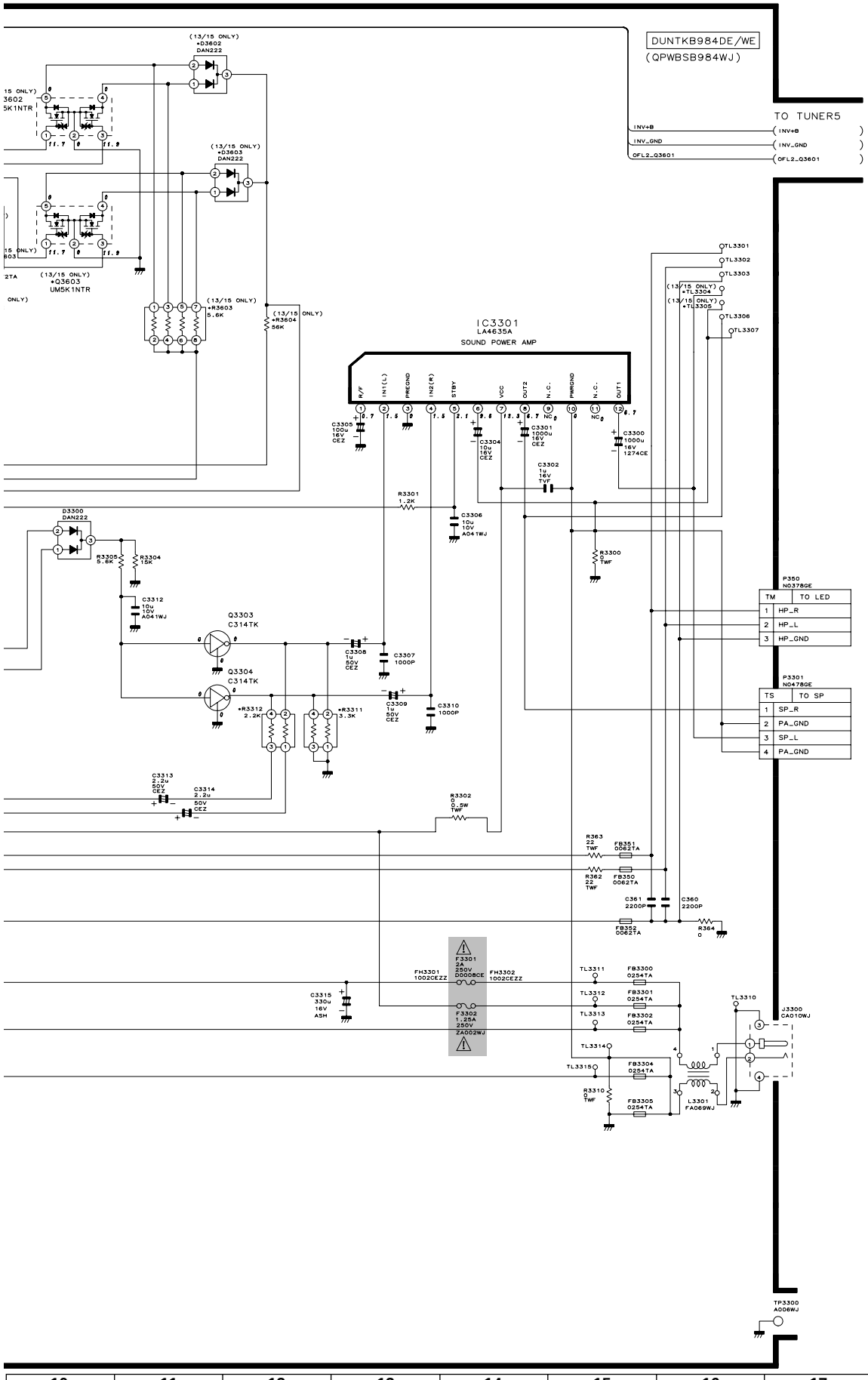


10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-3/5 (LC-13S1E)

TUNER3 (SP AMP)

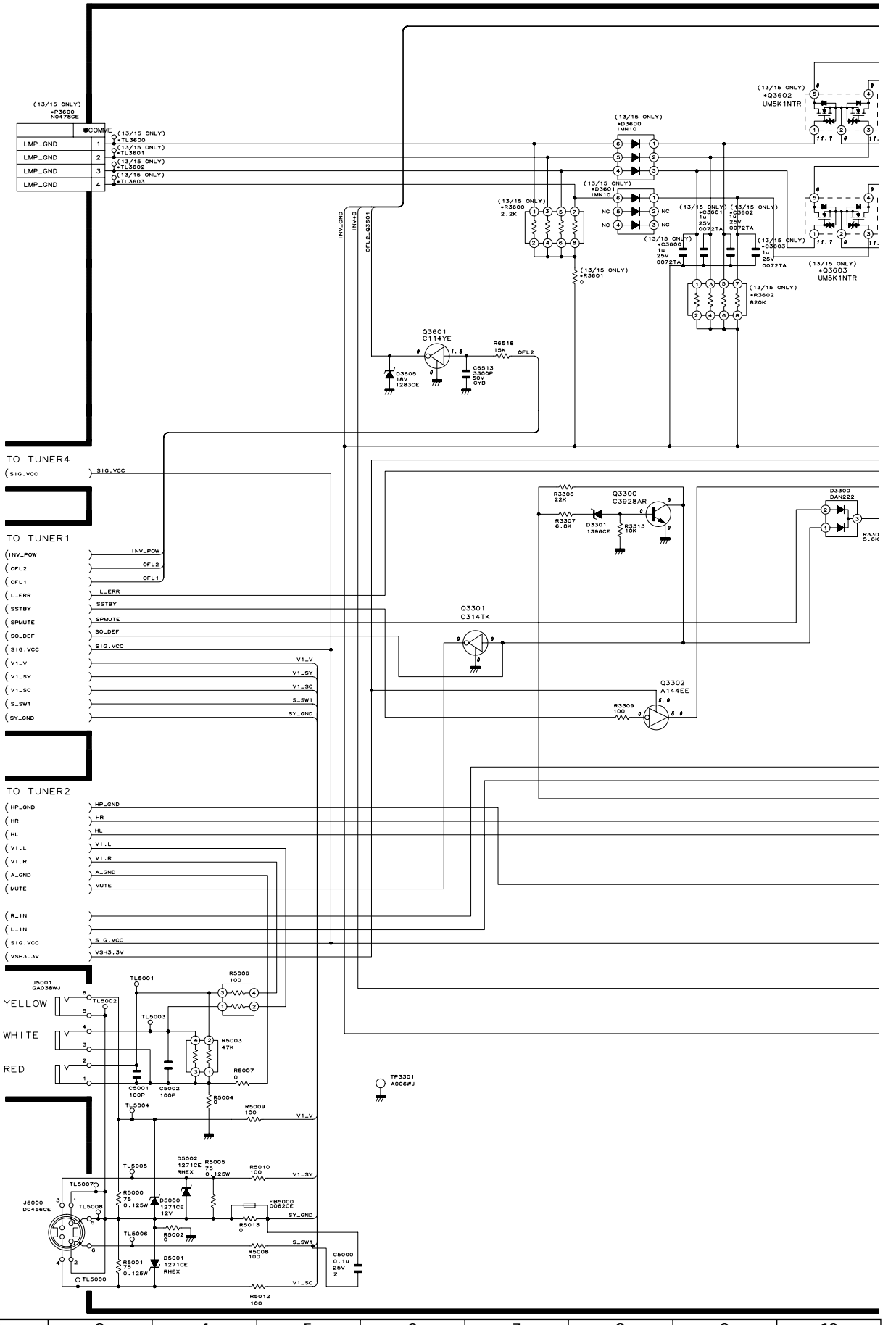


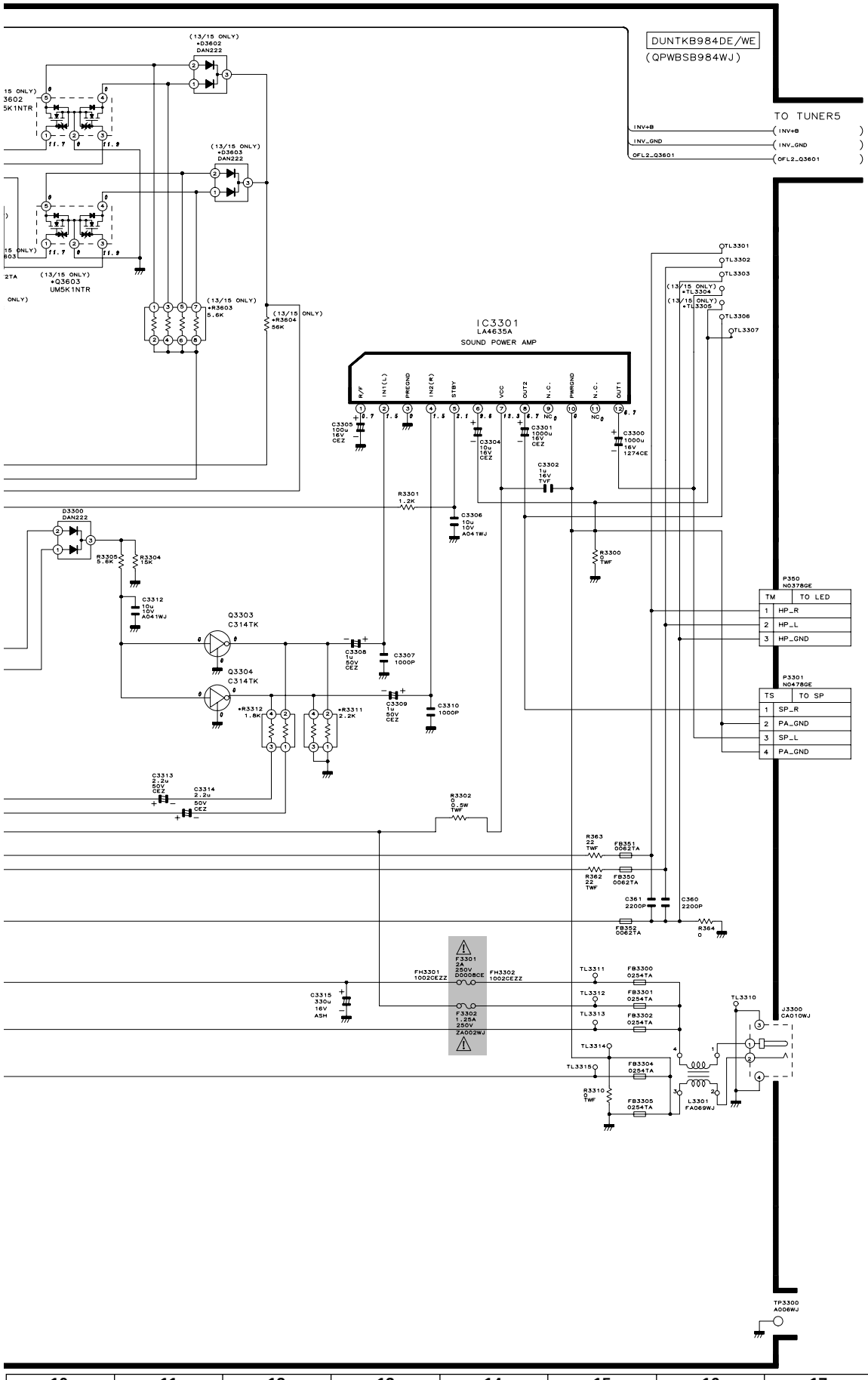


10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-3/5 (LC-15S1E)

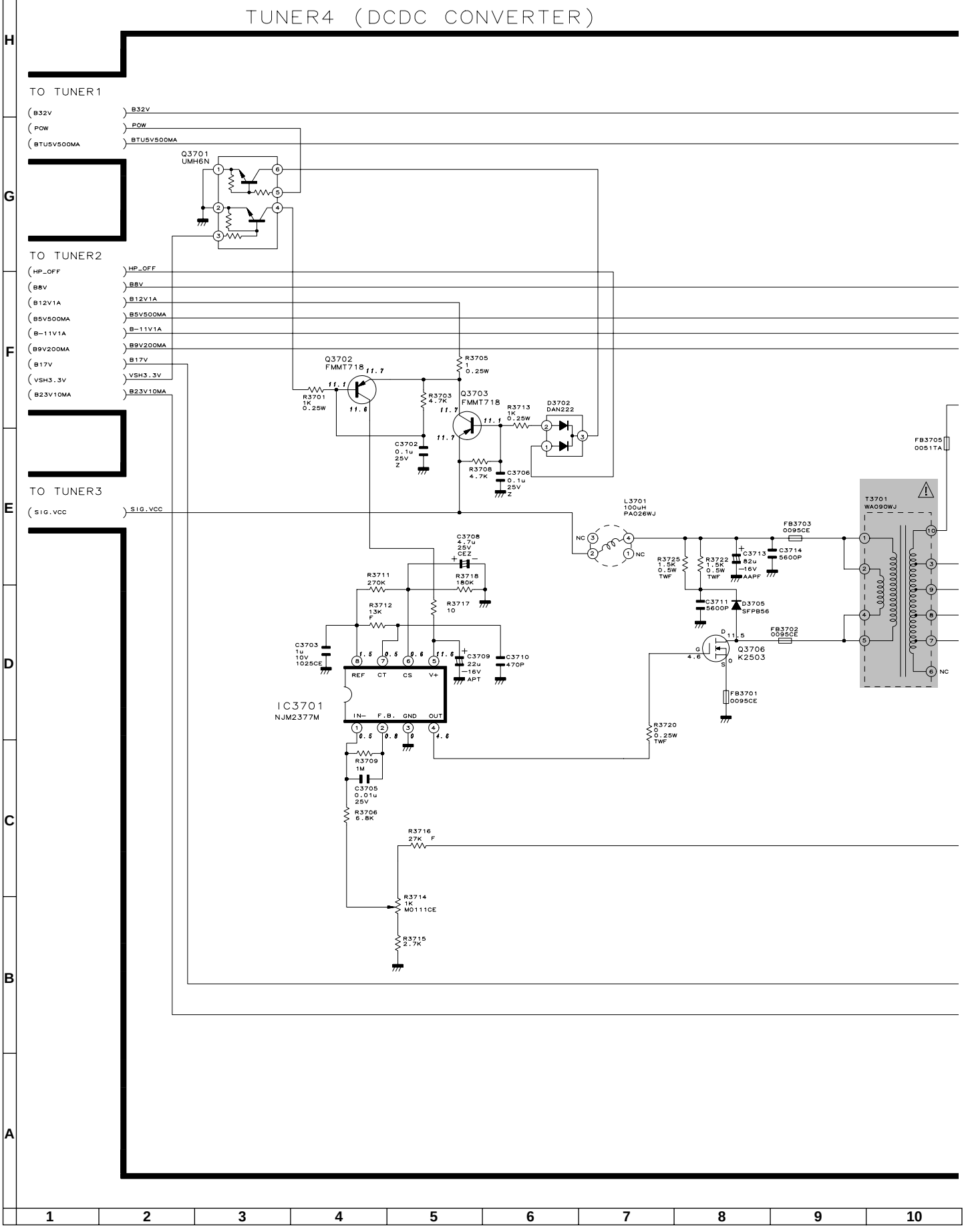
TUNER3 (SP AMP)



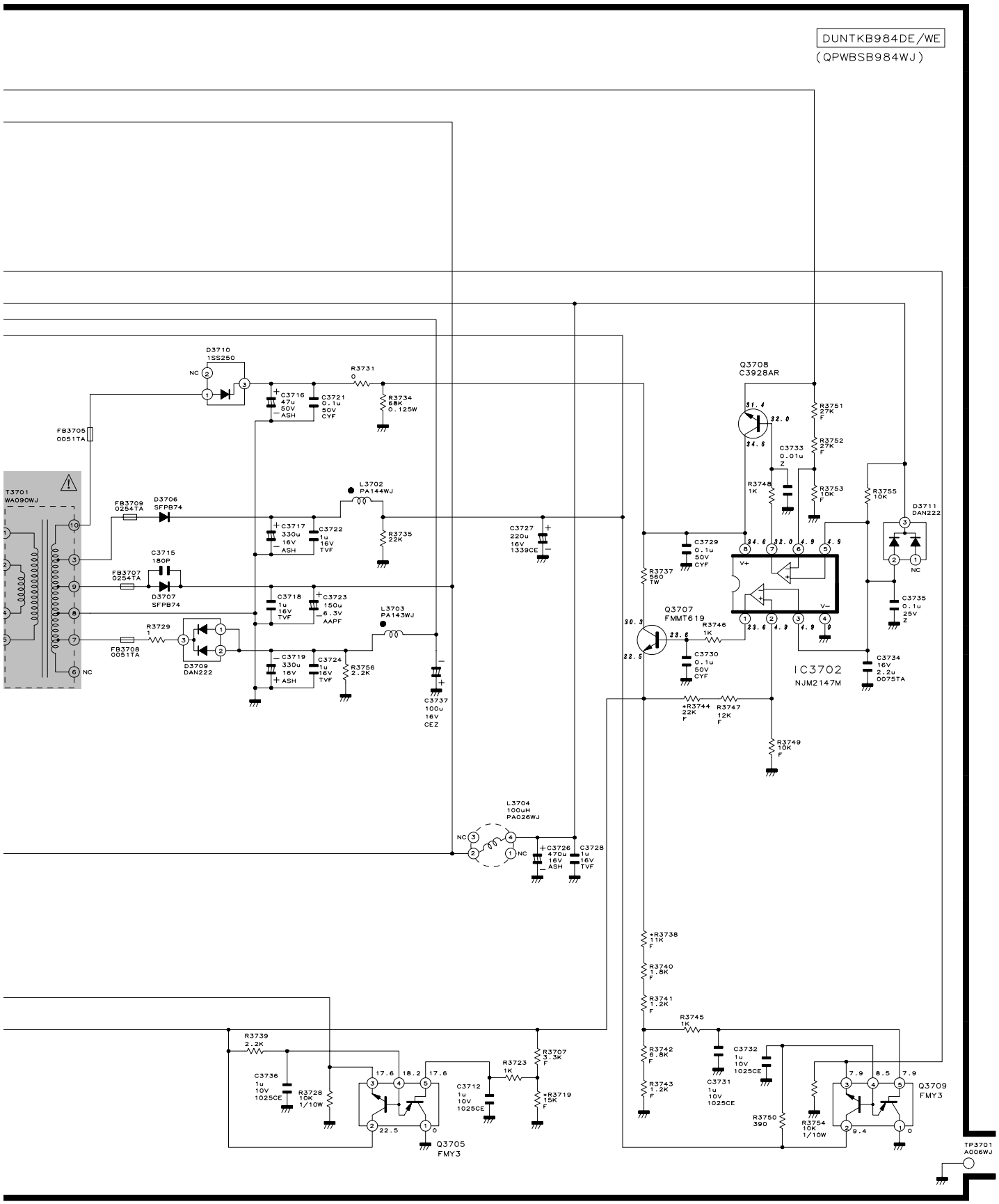


10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-4/5

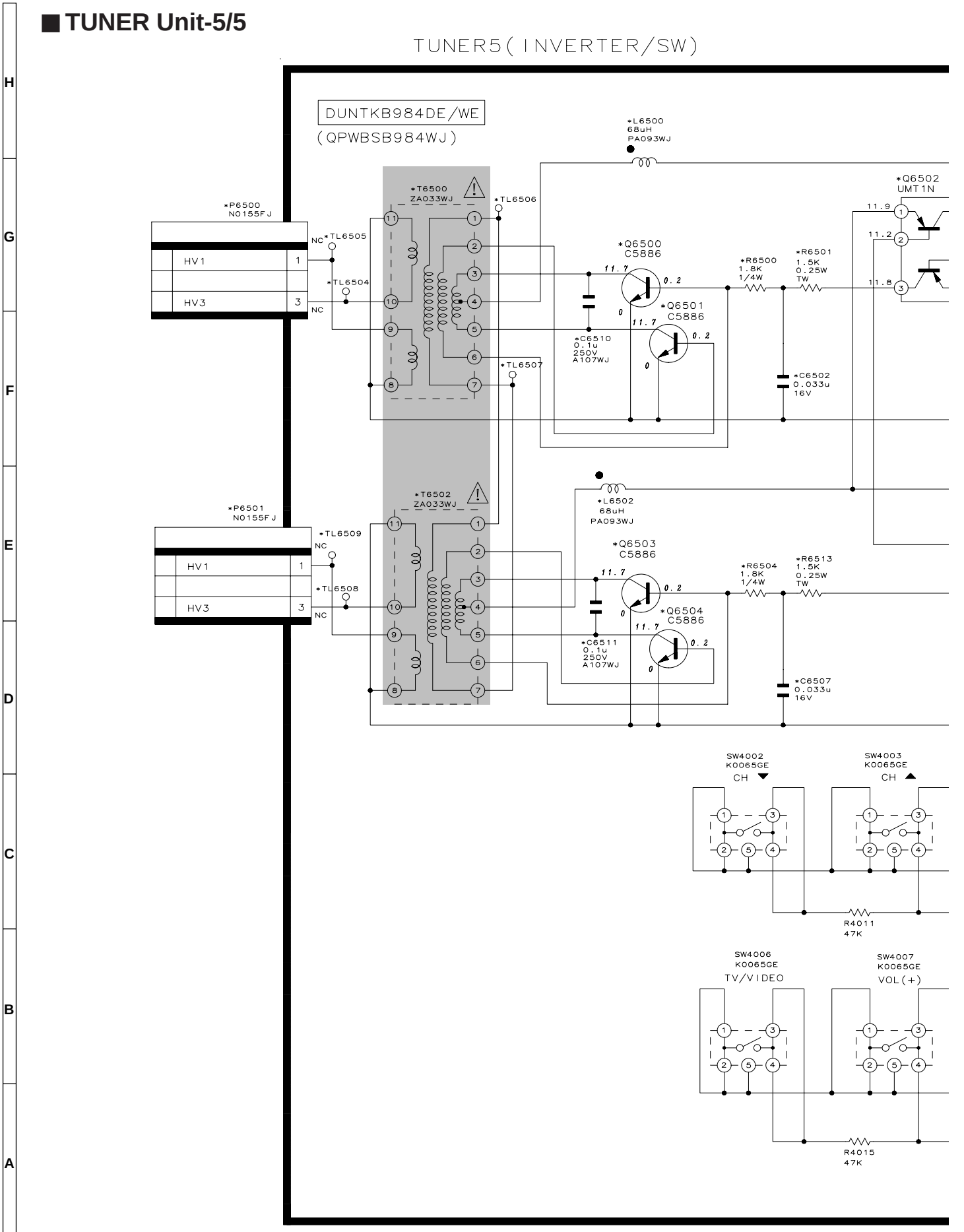


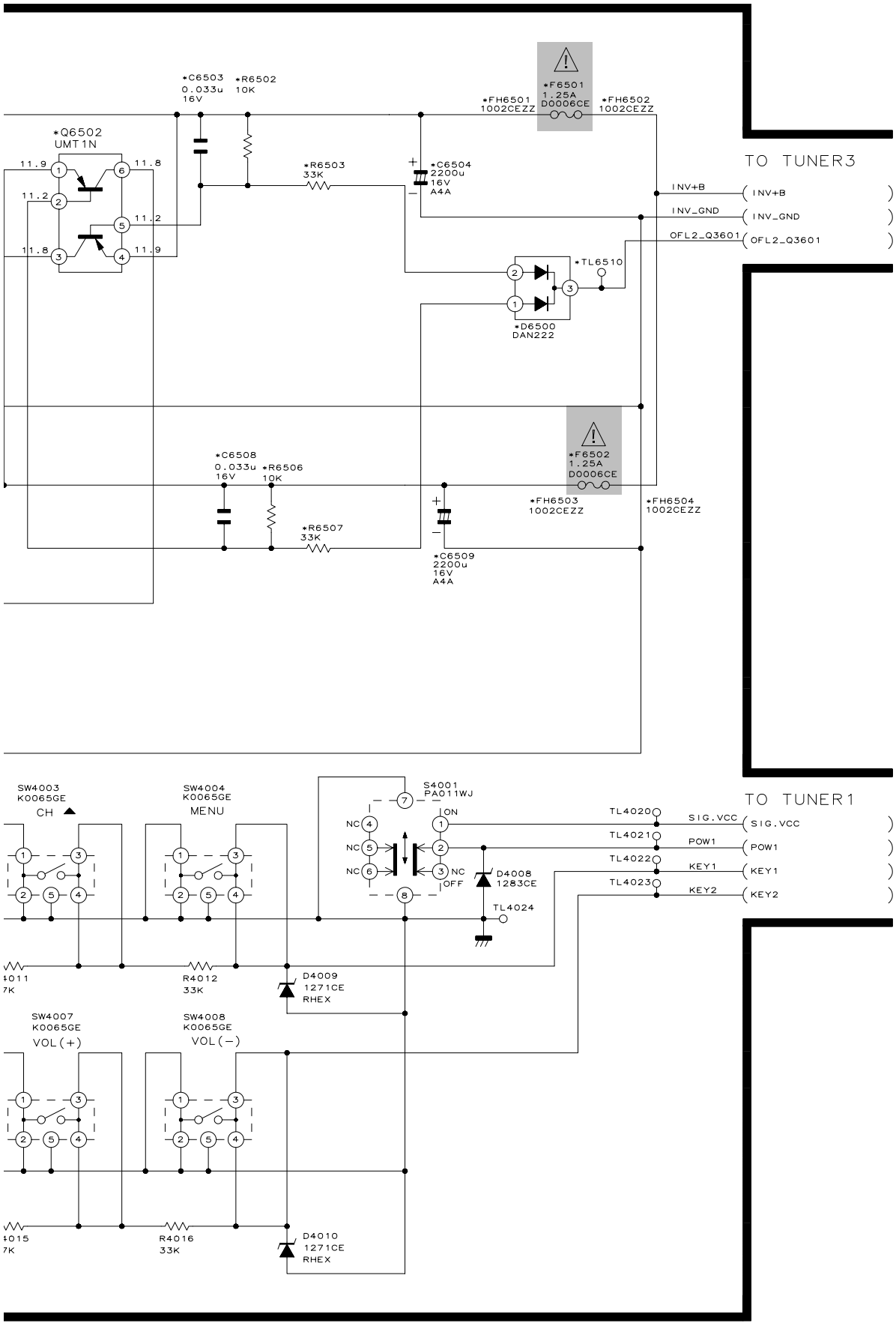
DUNTKB984DE/WE
(QPWBSB984WJ)



10	11	12	13	14	15	16	17	18	19

■ TUNER Unit-5/5





10	11	12	13	14	15	16	17	18	19